EK-1TU77-TM-002

TU77
Magnetic Tape
Transport

Technical Manual
Volume 1

digital equipment corporation • maynard, massachusetts

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2nd Edition, July 1981

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UNIBUS	EduSystem	VMS
VAX	IAS	VT
	MASSBUS	

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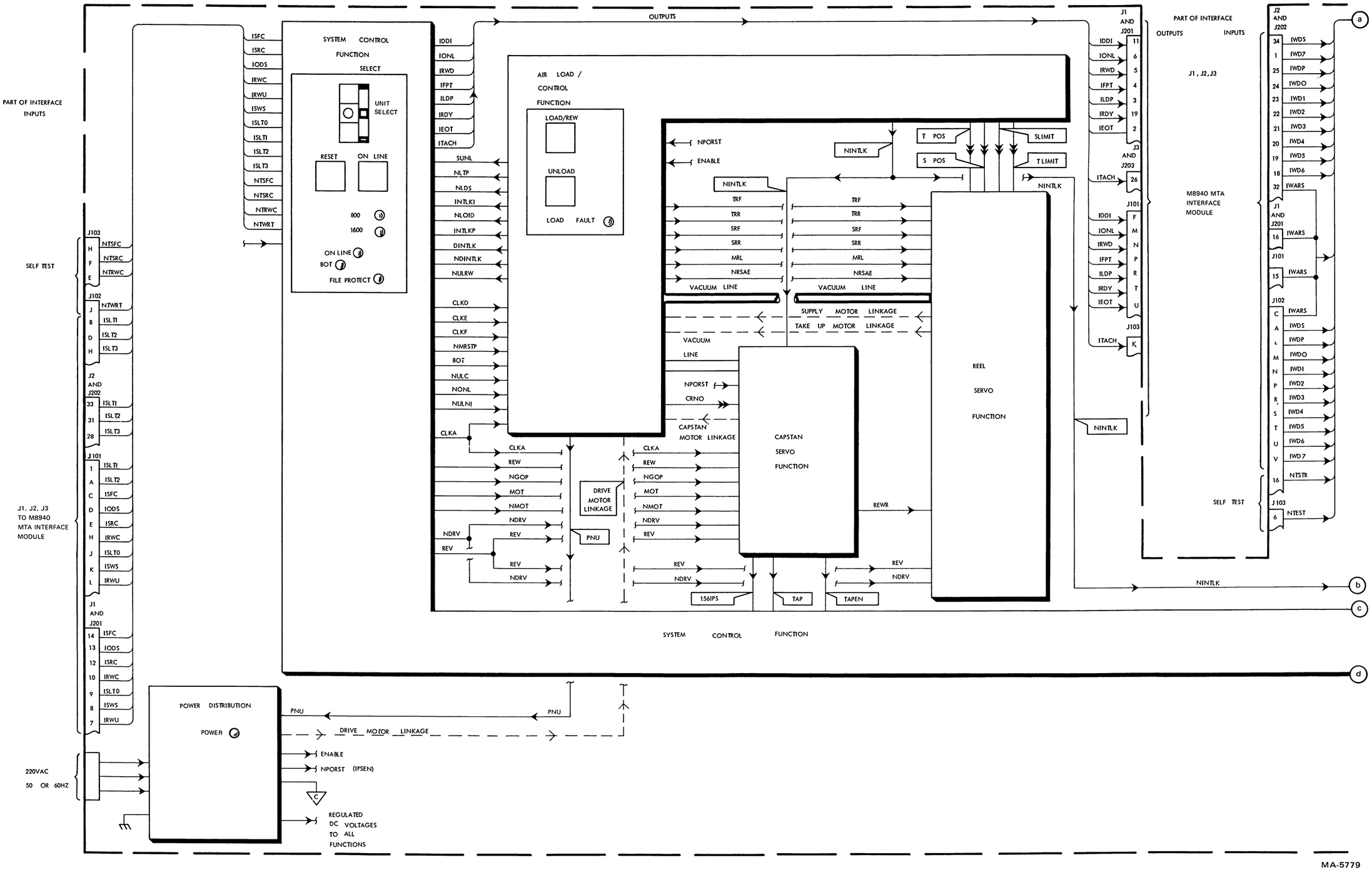


Figure 1 System Functional Block Diagram (Sheet 1 of 2)

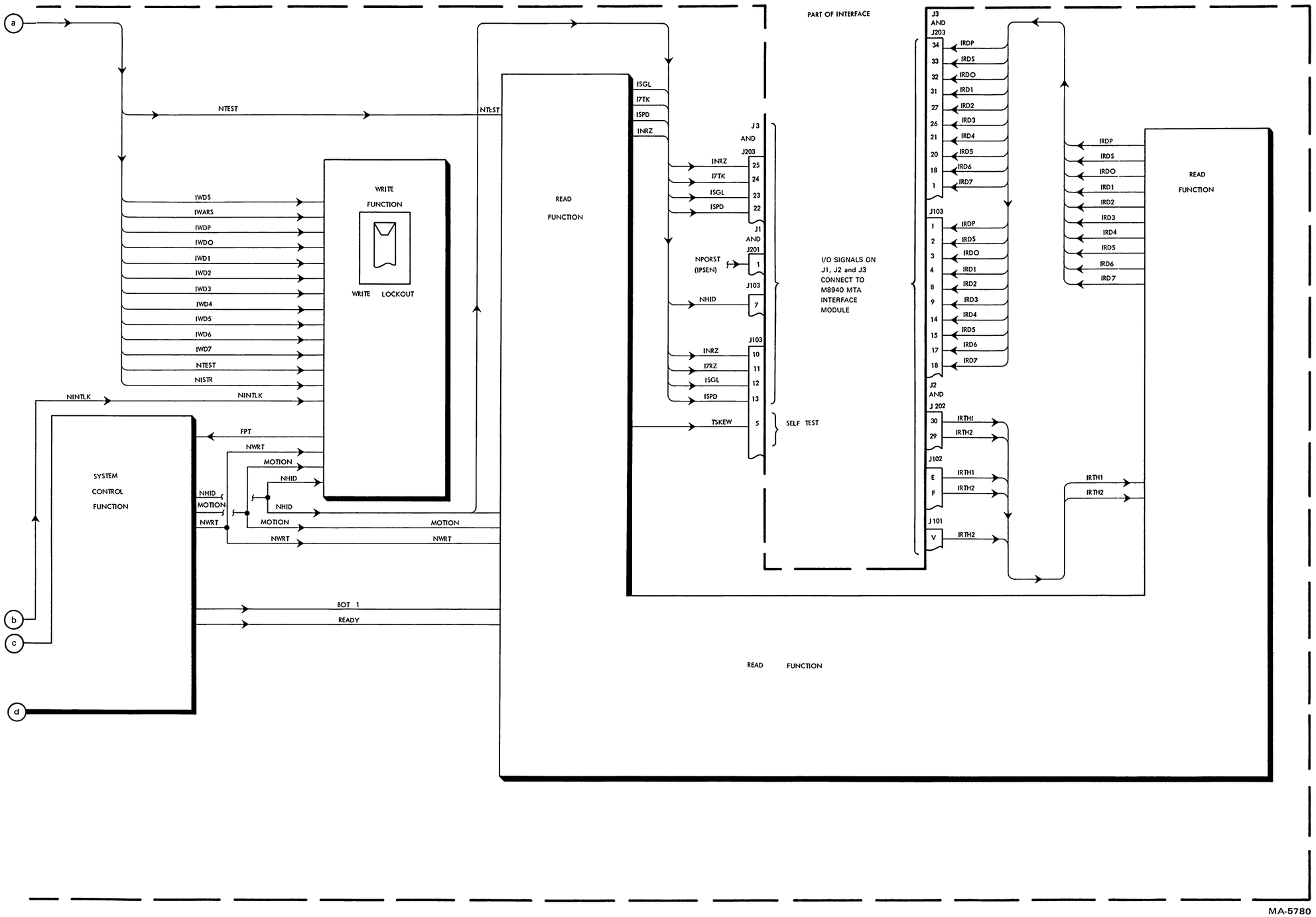


Figure 1 System Functional Block Diagram (Sheet 2 of 2)

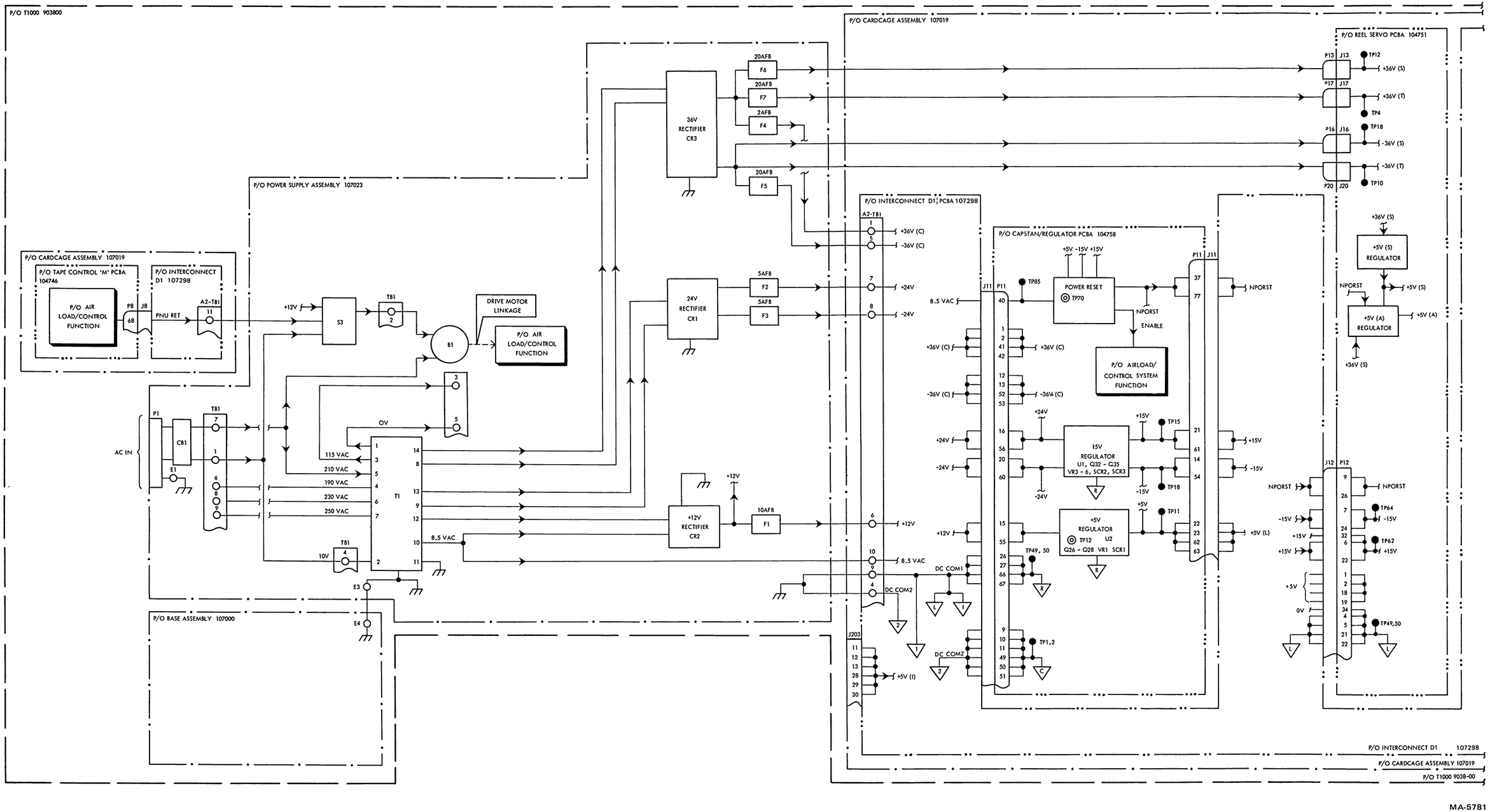


Figure 2 Power Supply and Distribution Functional Block Diagram (Sheet 1 of 2)

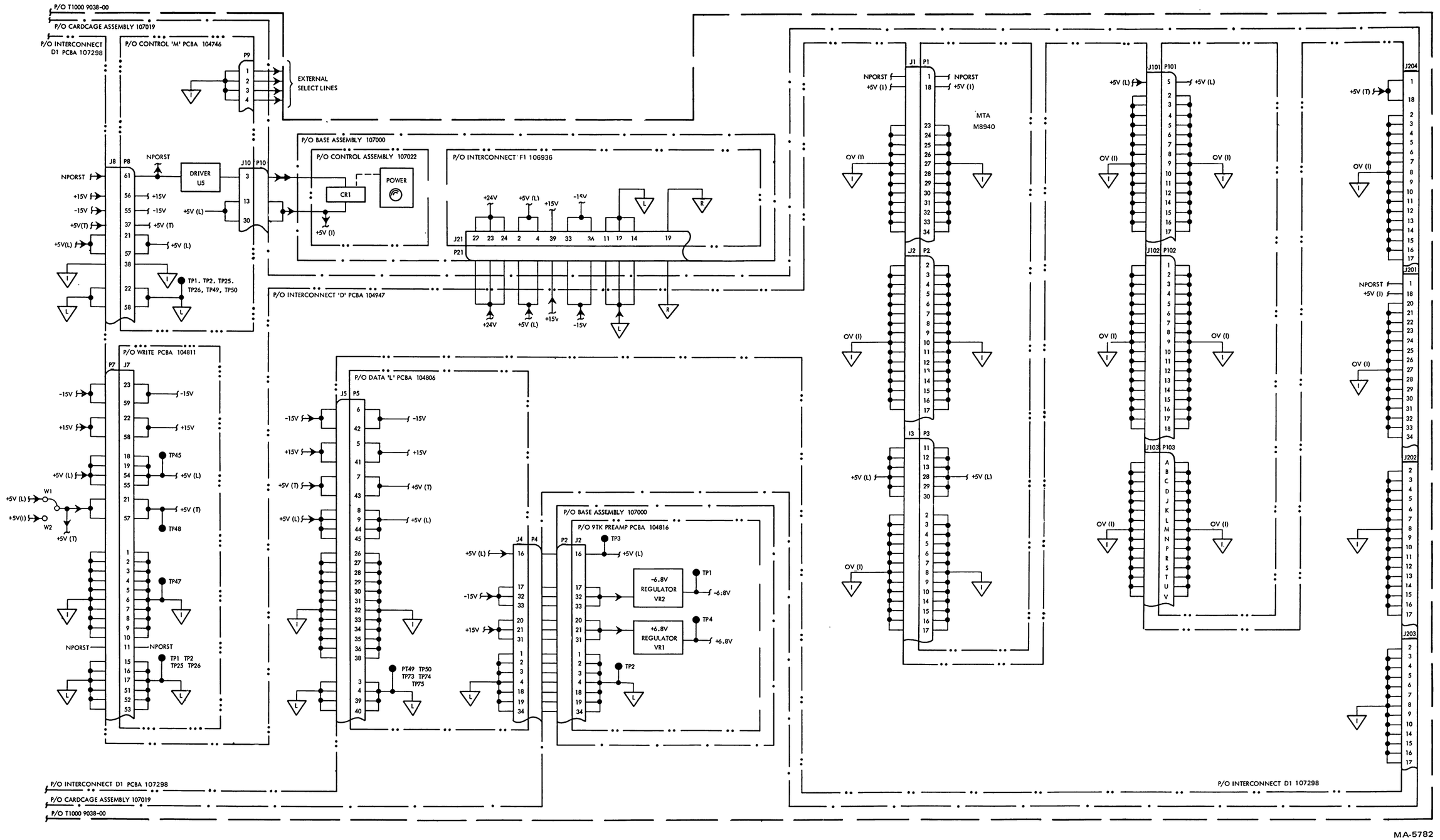


Figure 2 Power Supply and Distribution Functional Block Diagram (Sheet 2 of 2)

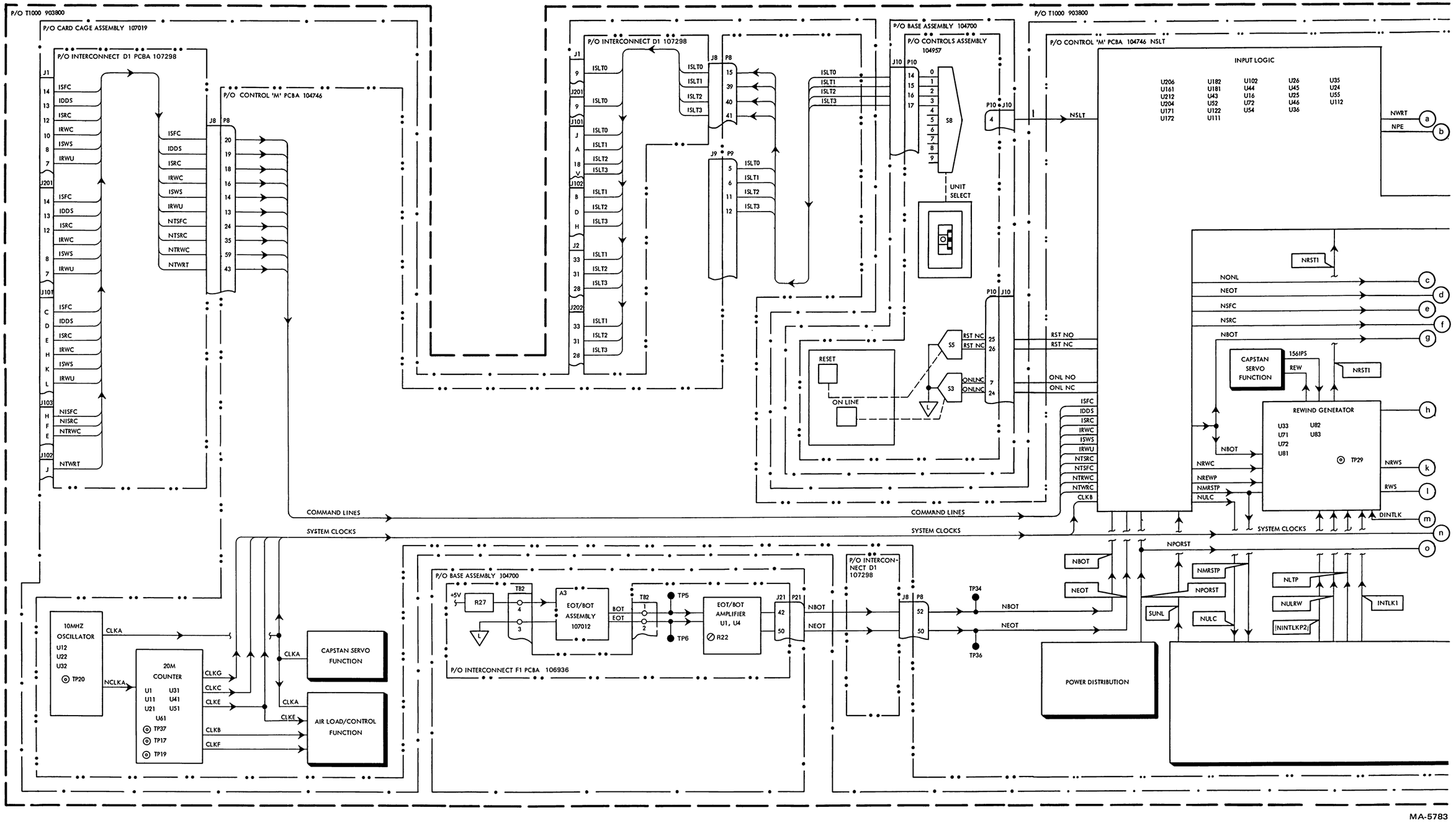
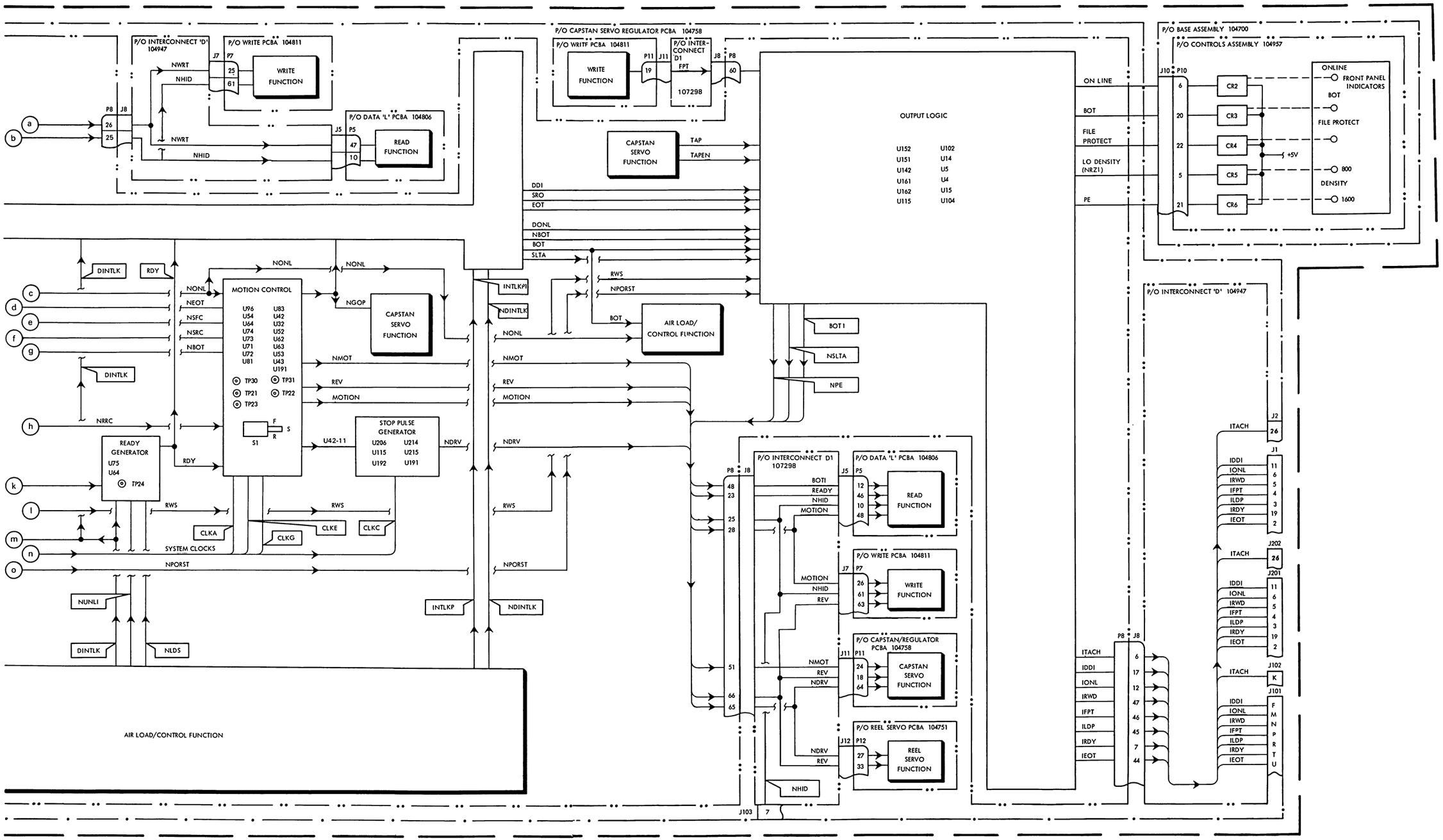


Figure 3 System Control Functional Block Diagram (Sheet 1 of 2)



MA-5784

Figure 3 System Control Functional Block Diagram (Sheet 2 of 2)

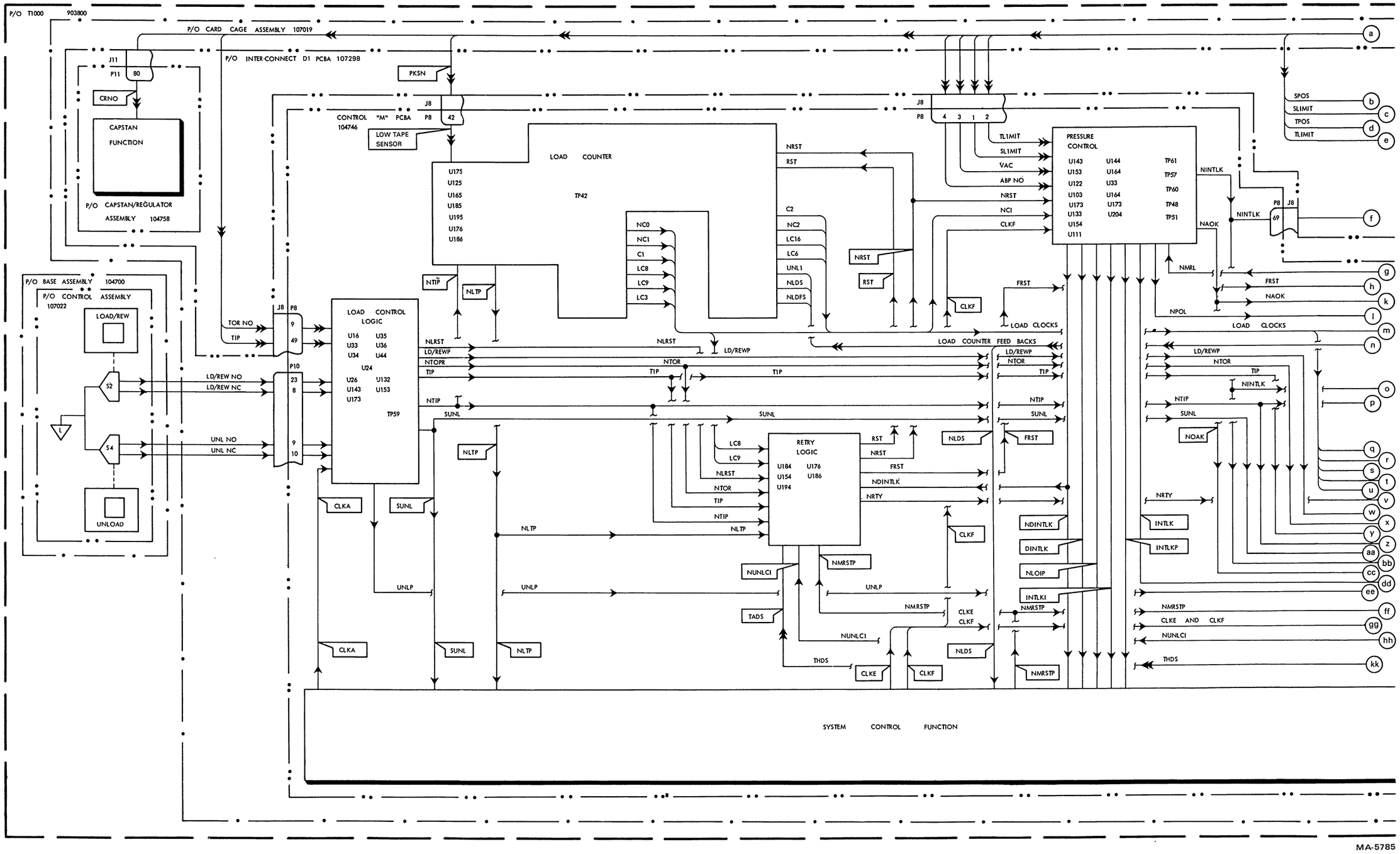


Figure 4 Air Load/Control Functional Block Diagram (Sheet 1 of 4)

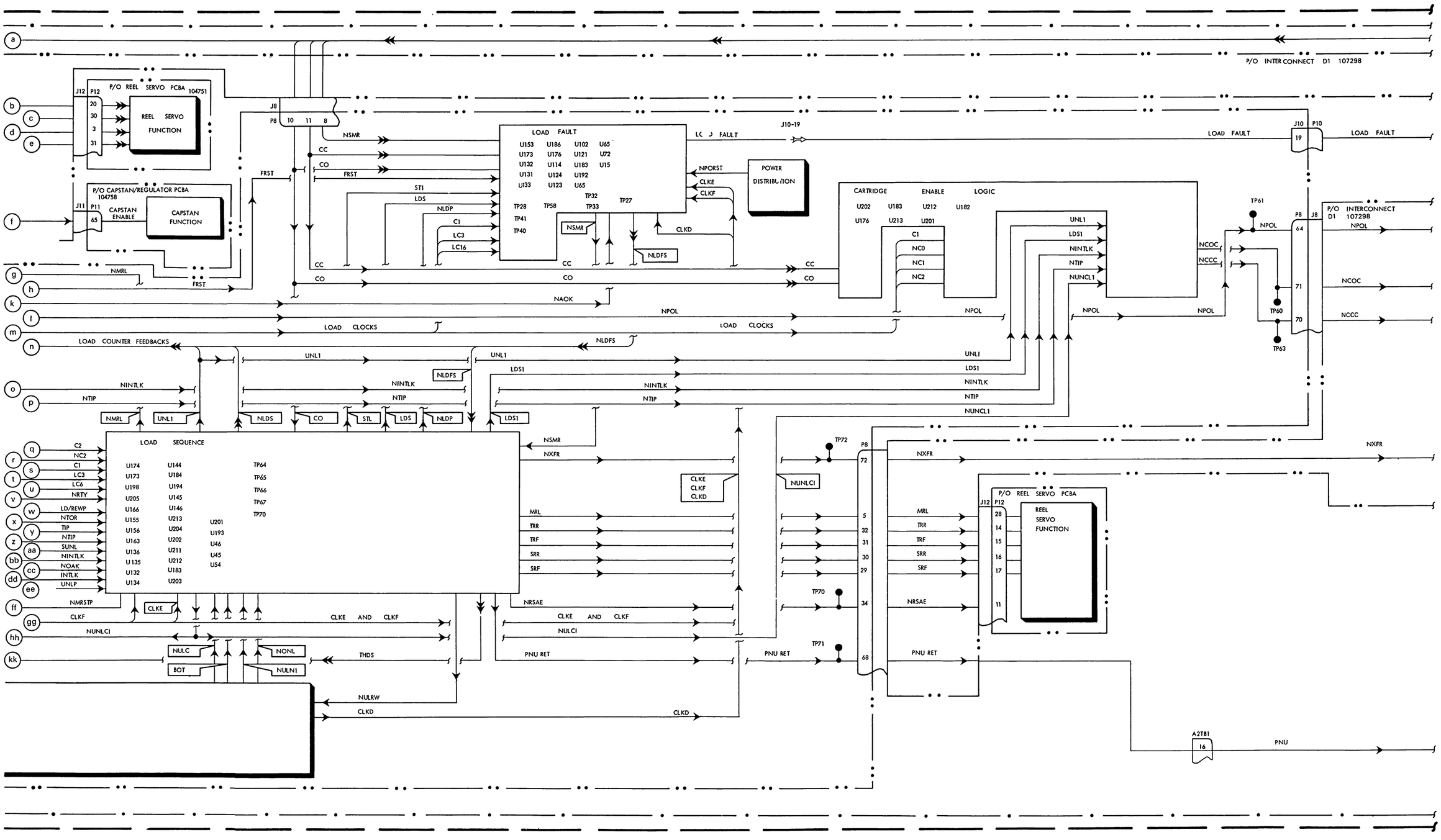


Figure 4 Air Load/Control Functional Block Diagram (Sheet 2 of 4)

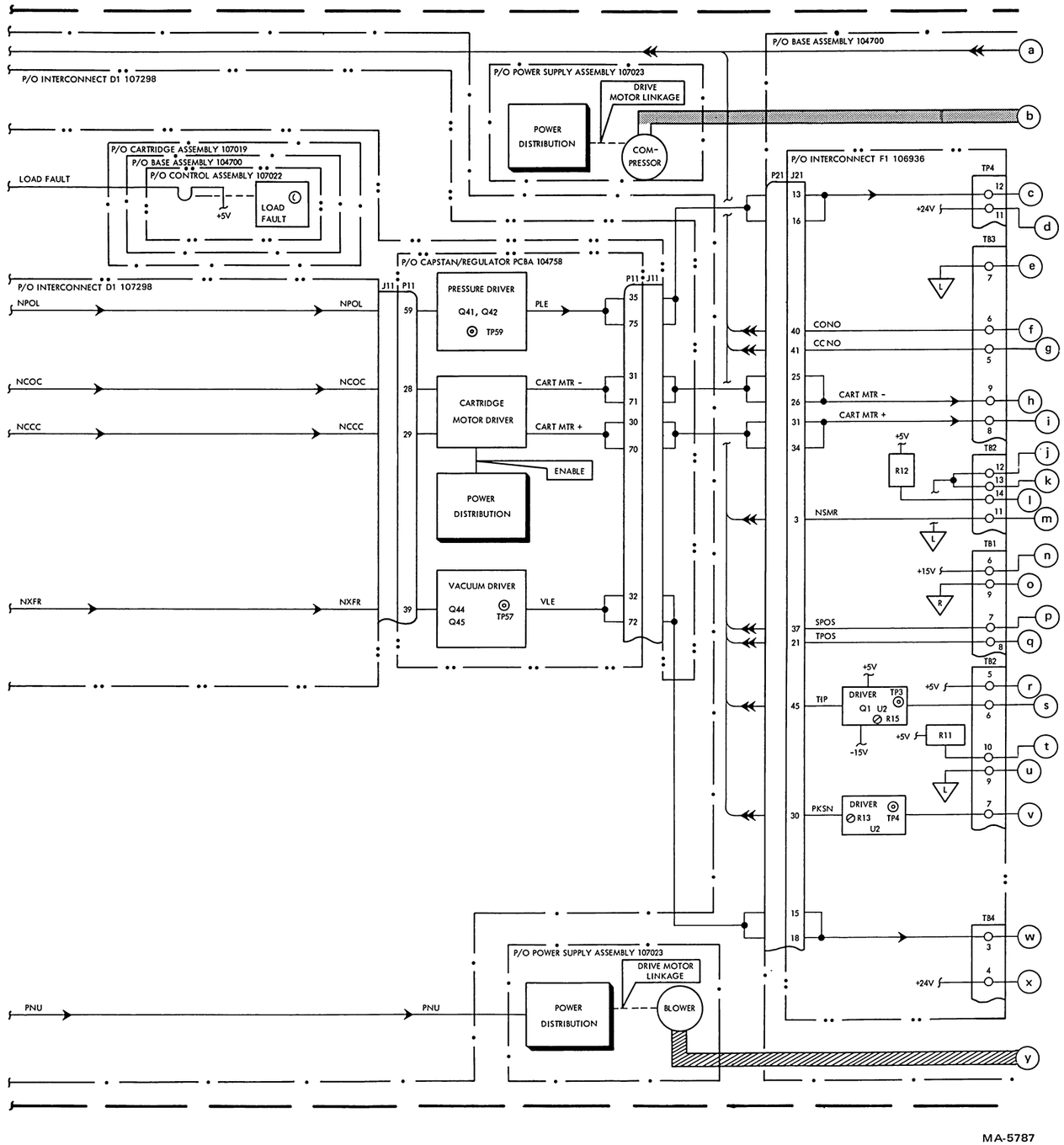


Figure 4 Air Load/Control Functional Block Diagram (Sheet 3 of 4)

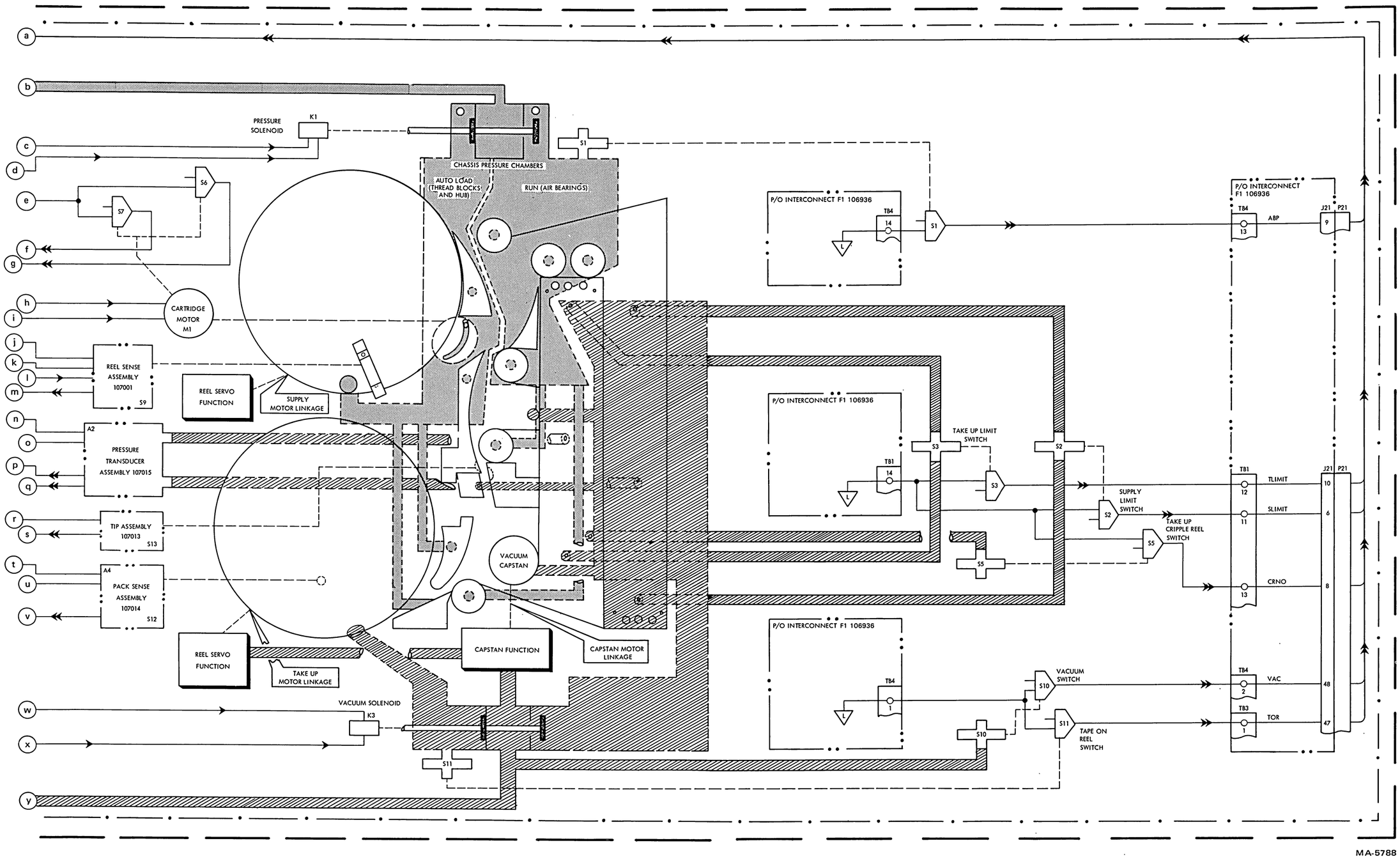


Figure 4 Air Load/Control Functional Block Diagram (Sheet 4 of 4)

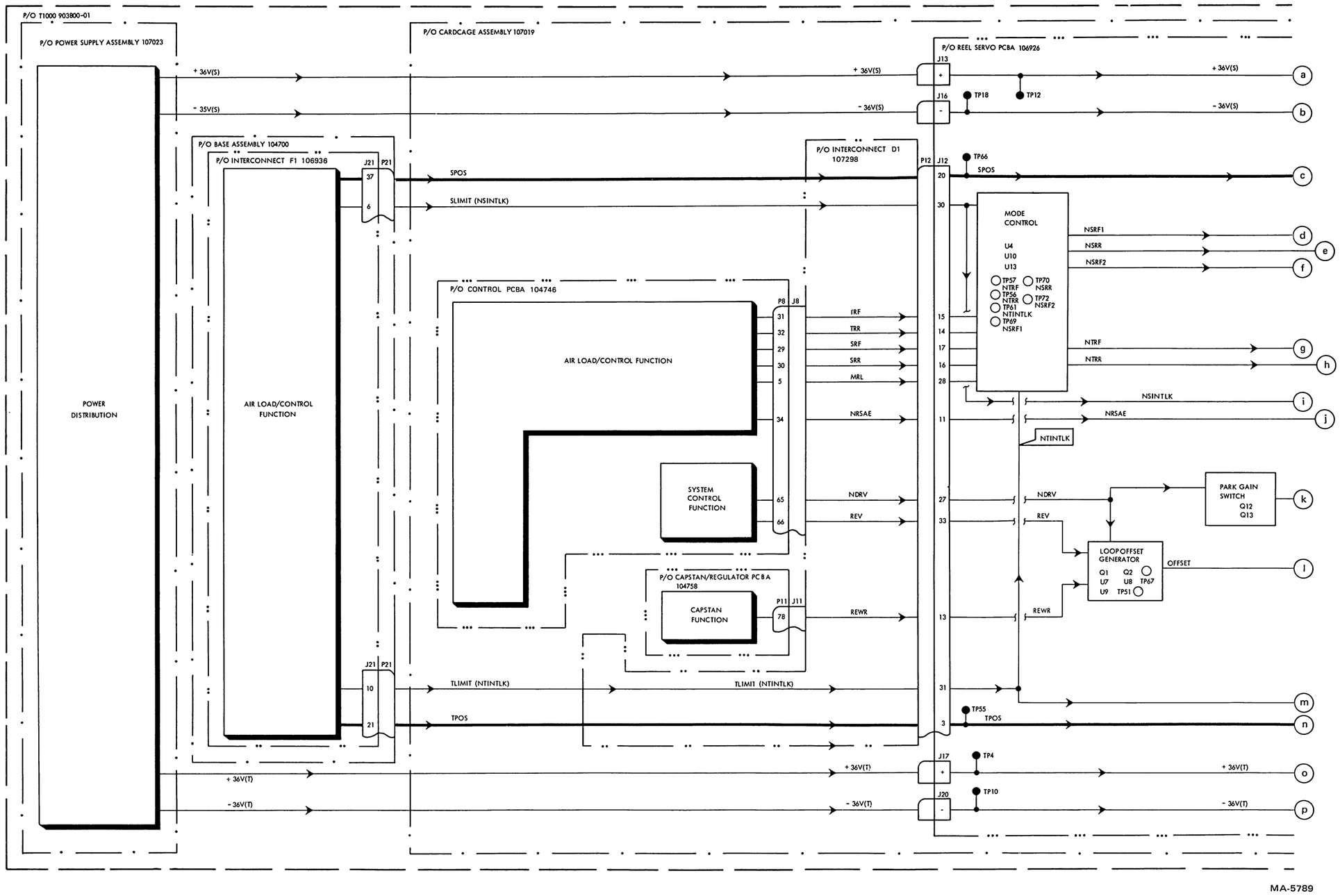


Figure 5 Reel Servo Functional Block Diagram (Sheet 1 of 2)

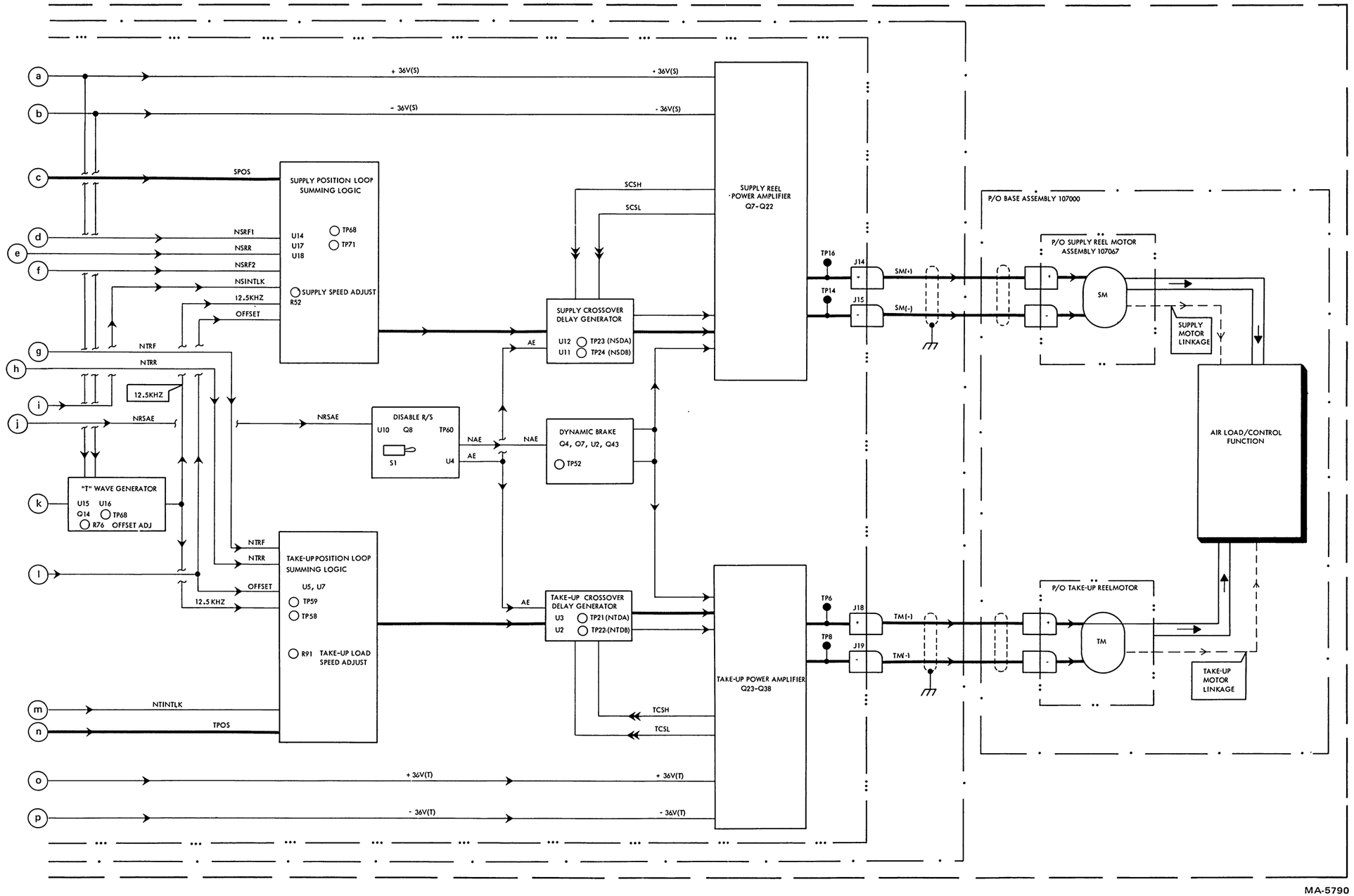


Figure 5 Reel Servo Functional Block Diagram (Sheet 2 of 2)

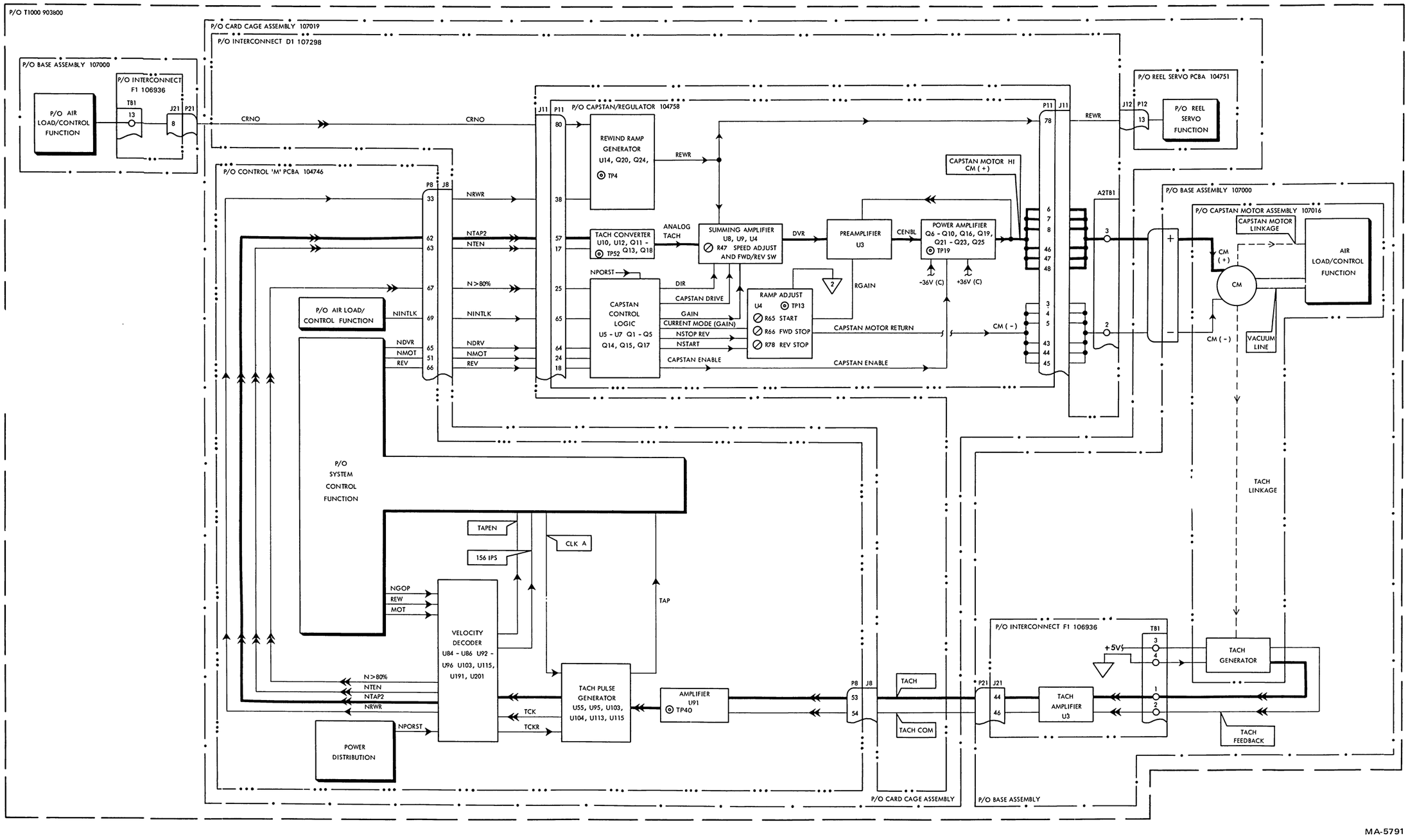


Figure 6 Capstan Servo Functional Block Diagram

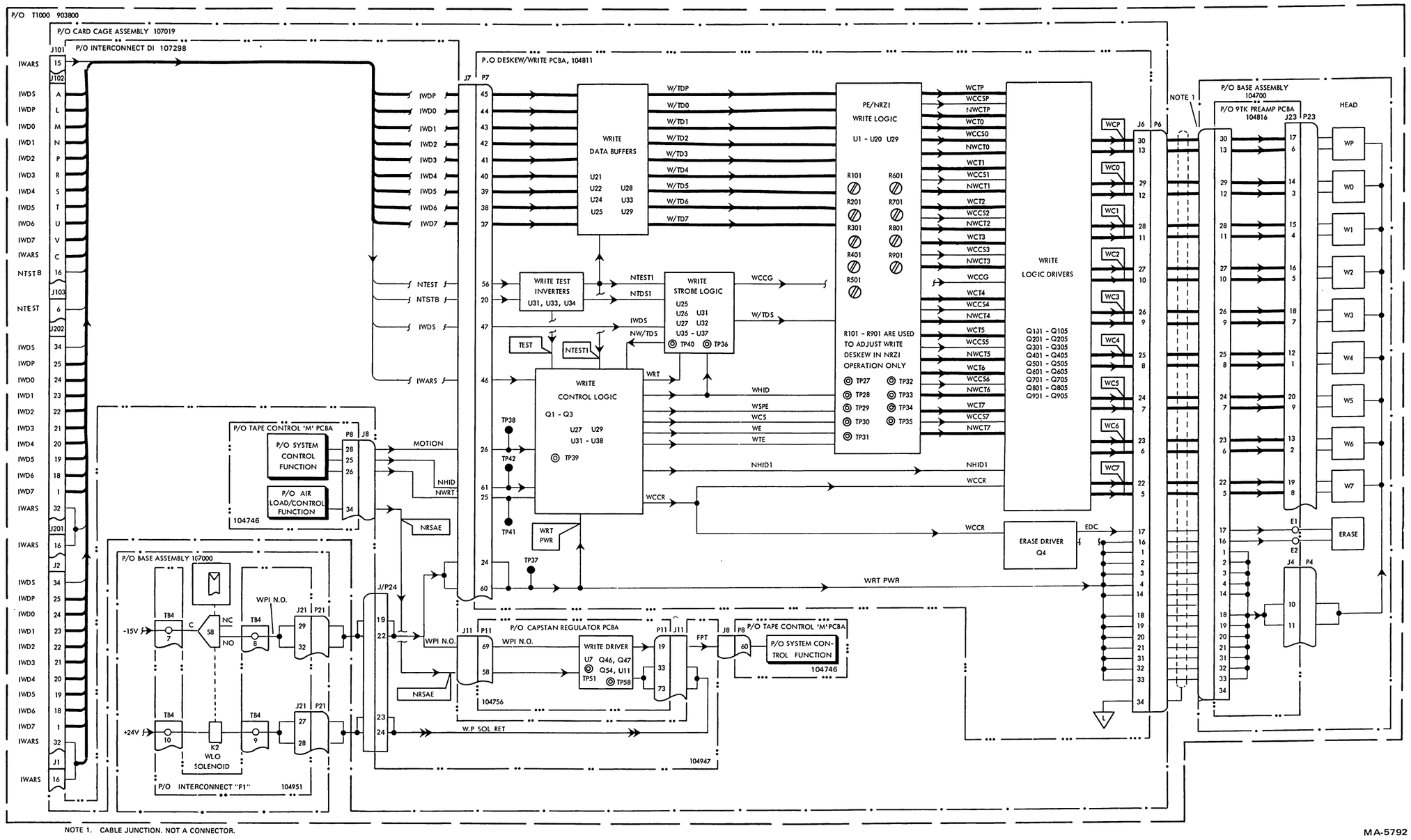
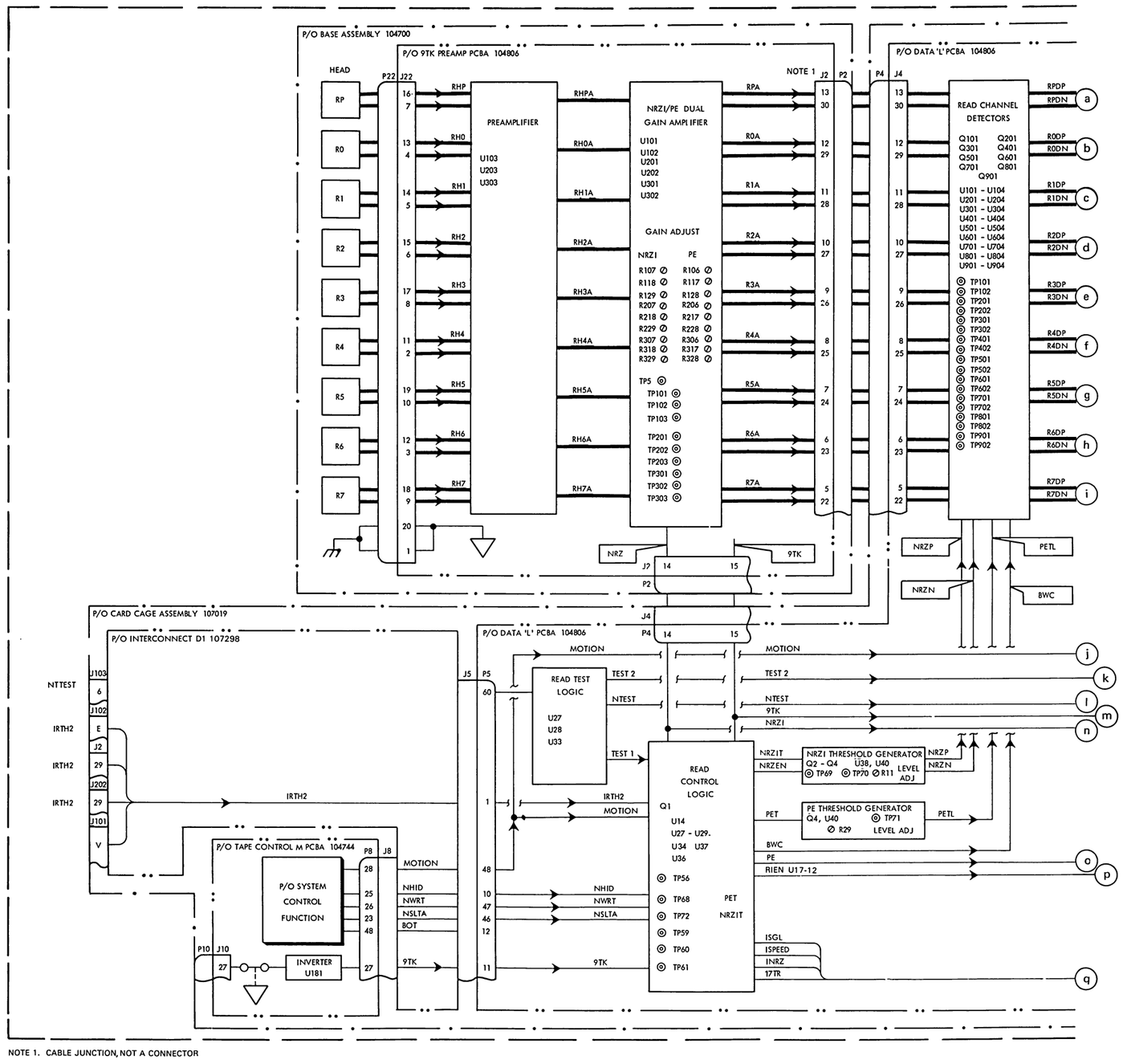
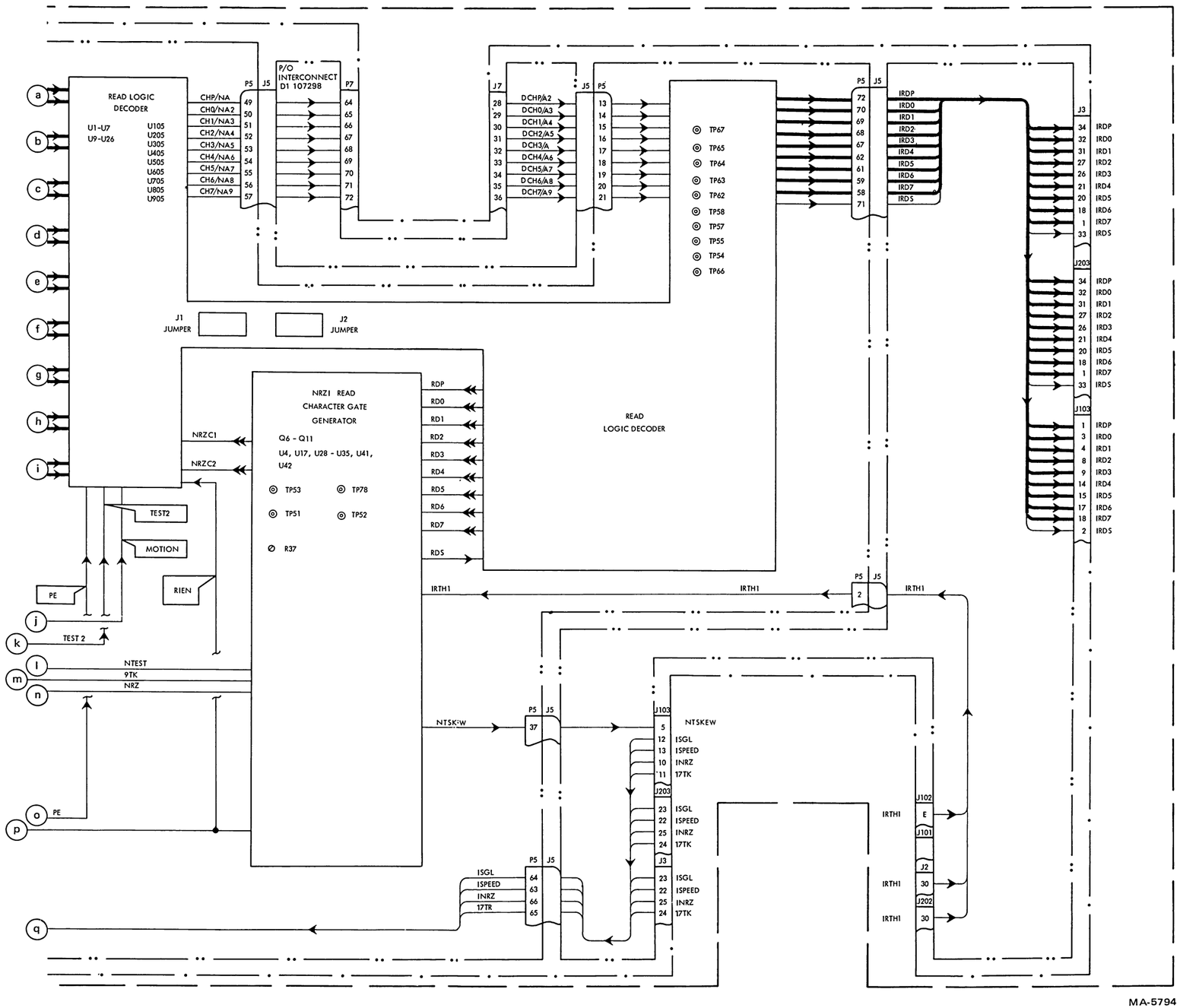


Figure 7 Write Functional Block Diagram



NOTE 1. CABLE JUNCTION, NOT A CONNECTOR

Figure 8 Read Functional Block Diagram (Sheet 1 of 2)



MA-5794

Figure 8 Read Functional Block Diagram (Sheet 2 of 2)

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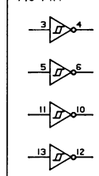
REVISIONS					
REV	DESCRIPTION	DATE	DR	CHK	APPD
A	ERN 10-KZ PROD RELEASE	11/19/	JJ		
B	ECN 11157	3/19/			
C	ECN 11251	3/19/	BAS		
D	ECN 11818	8/1/1	SRL		
E	ECN 12070	11/1/	MM		
E1	ECN C12190	1/19/	MM		
E2	ECN C12489	4/4/	LAR		
F	ECN C13313A	7/20/	MP		
G	ECN C13697	11/19/	SRL		
H	ECN 14362	7/1/	SRL		
J	ECN C14440	7/20/	SRL		
K	ECN C14772	1/28/			
L	ECN C14987	3/29/	MA		
M	ECN C15473	10/28	LS		

TABLE I (1)

PART NO.	REFERENCE DESIGNATION
100-0005	W2, 3
100-1025	R20
100-1055	R21, 26
100-2245	R25
100-3335	R18
100-4725	R19, 24
100-4745	R23
101-1015	R29
101-4705	R28
101-5615	R27
107-0348	R7, 14
107-1000	R4, 6, 12, 15
107-3833	R10
107-1003	R5, 5, 11, 13
107-5112	R8, 16
107-8253	R2
121-1020	R1, 9
121-1030	R17
121-5040	R22
135-1002	C5, 6
130-1005	C1
135-4742	C2
139-2244	C3, 4
200-4123	Q1
300-4002	CR10, 11, 12
300-4446	CR1 THRU 9
400-0318	U5
400-0307	U1, 2
400-0311	U4, 6
710-7414	U3

TABLE V (5)

U3
710-7414



REFERENCE DESIGNATION		
LAST USED	NOT USED	DELETED
C6		
CR12		
J21		
Q1		
R31		
TB4		
TP7		
U6		
W5		W1
S15	S4, 9, 12, 13	

TABLE II

ASSEMBLY 106936 VERSION NO	VERSION CHARACTERSTIC			R30, 31	
				VALUE	PART NO.
-01				200K	121-2041
-02					
-03				200K	121-2041

TABLE IV (4)

I.C. TYPE	GND	+5V	+15V	-15V
LM 307			7	4
LM 311			8	4
LM 318			7	4
74LS14	7	14		

11. WIRE IS 24 AWG WHITE.
10. DIODES ARE IN4446.
9. (RESERVED)
8. (RESERVED)
7. CAPACITOR VALUES ARE IN MICROFARADS, ±20%.
6. RESISTOR VALUES ARE IN OHMS, 1/4W, 5%.
(5) FOR SPARE LOGIC ELEMENTS, SEE TABLE V.
(4) FOR I.C. GENERIC TYPE NUMBER AND GROUND/VOLTAGE PIN NUMBERS SEE TABLE IV.
3. (RESERVED)
(2) FOR VALUE, PART NUMBER, AND USAGE, OF COMPONENTS AFFECTED BY VERSION NUMBER. SEE TABLE II.
(1) FOR PART NUMBER OF COMPONENTS NOT AFFECTED BY VERSION NUMBER, SEE TABLE I.

NOTES: UNLESS OTHERWISE SPECIFIED

ASSEMBLY NO. 107000
WIRE LIST NO. 107007

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UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES
.XX ± ANGULAR ± 1/2°
.XXX ±
BREAK ALL SHARP CORNERS APPROX. .010

SIGNATURES	DATE
DR. Dave Apfel	10/1/79
CHK Larry Tell	10/1/79
DES	
ENGR S Pearson	10/1/79
PROJ. ENGR	

PERTEC
a division of Pertec Computer Corporation

TITLE
SCHEMATIC,
BASE ASSEMBLY

T1000
NEXT ASSY | USED ON
APPLICATION

FINISH:
MATL:

SIZE	CODE IDENT NO	DWG NO.	REV
E	32097	107307	M
SCALE NONE	DO NOT SCALE DWG	SHEET 1 OF 3	

CADDS

MA-9234

Figure 9 Schematic, Base Assembly (10730) (Sheet 1 of 3)

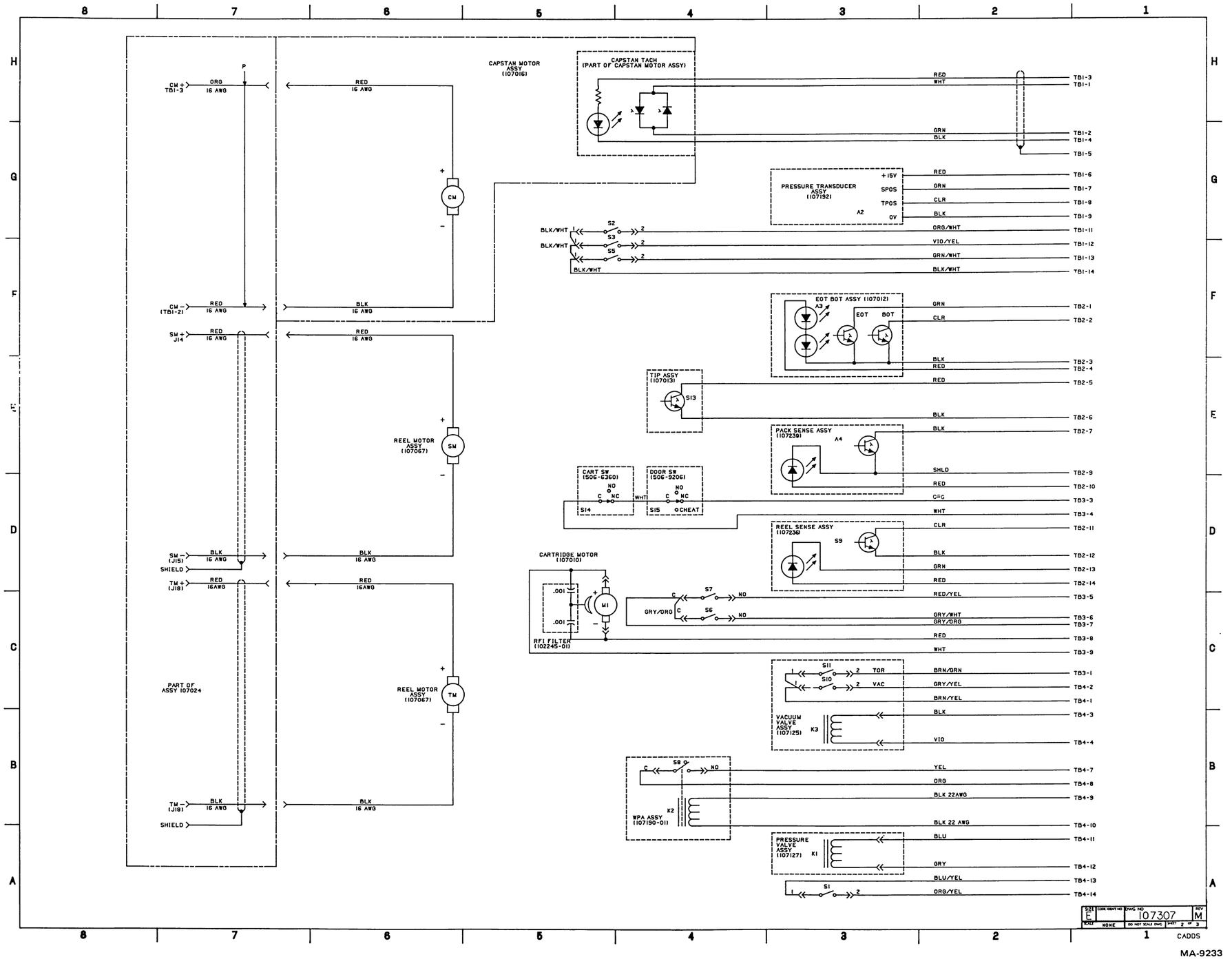


Figure 9 Schematic, Base Assembly (10730) (Sheet 2 of 3)

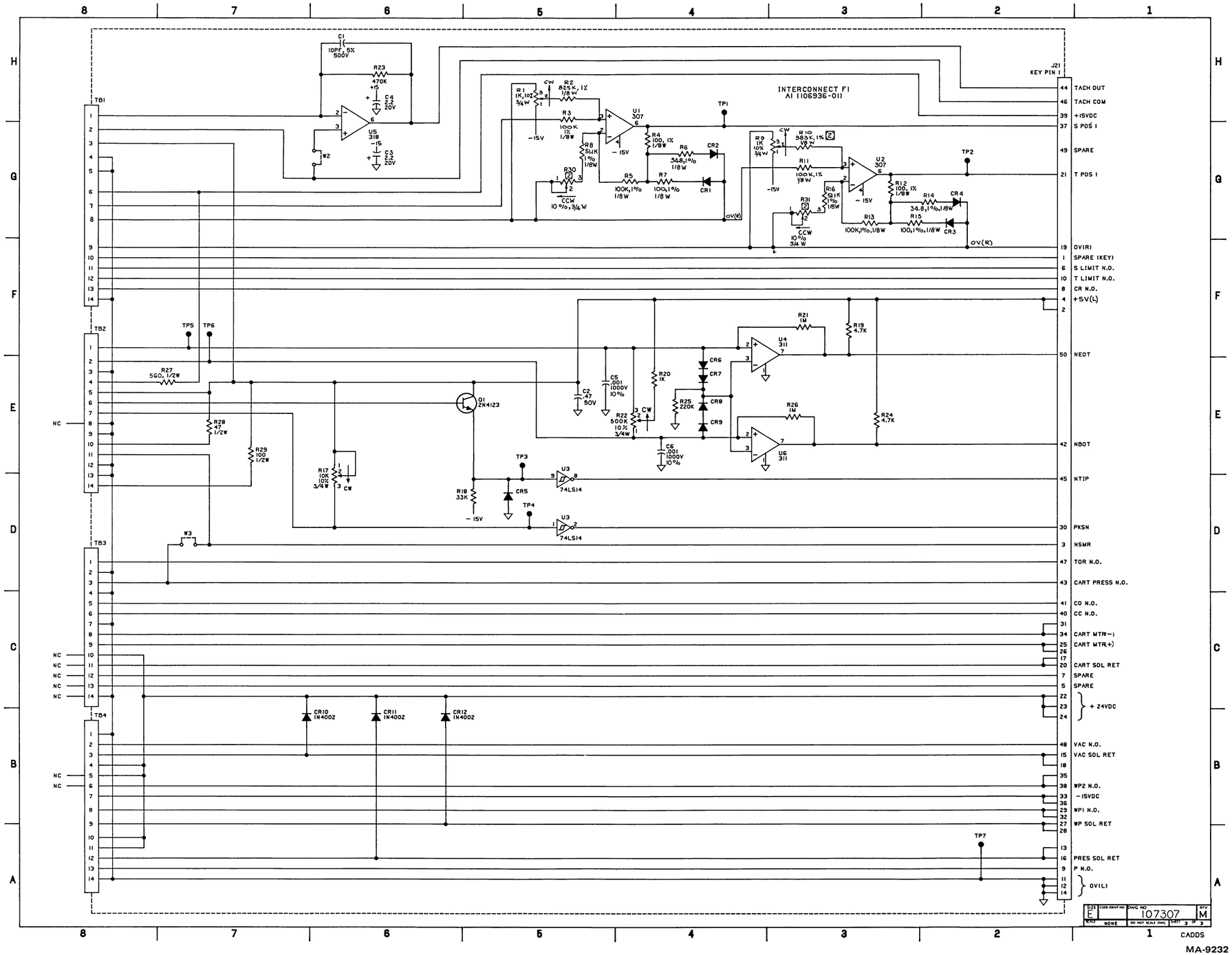
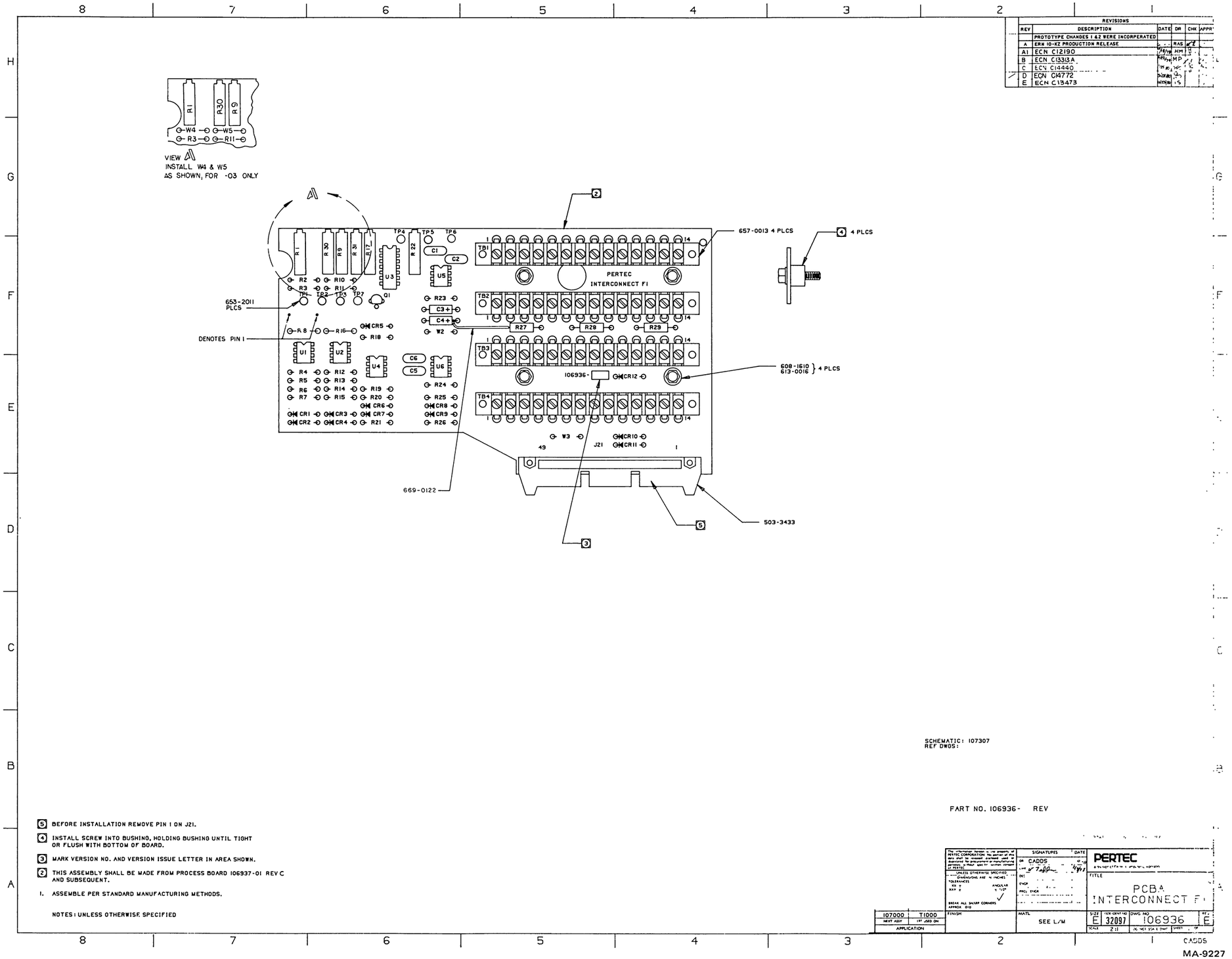


Figure 9 Schematic, Base Assembly (10730) (Sheet 3 of 3)



MA-9227

Figure 10 PCBA, Interconnect F1

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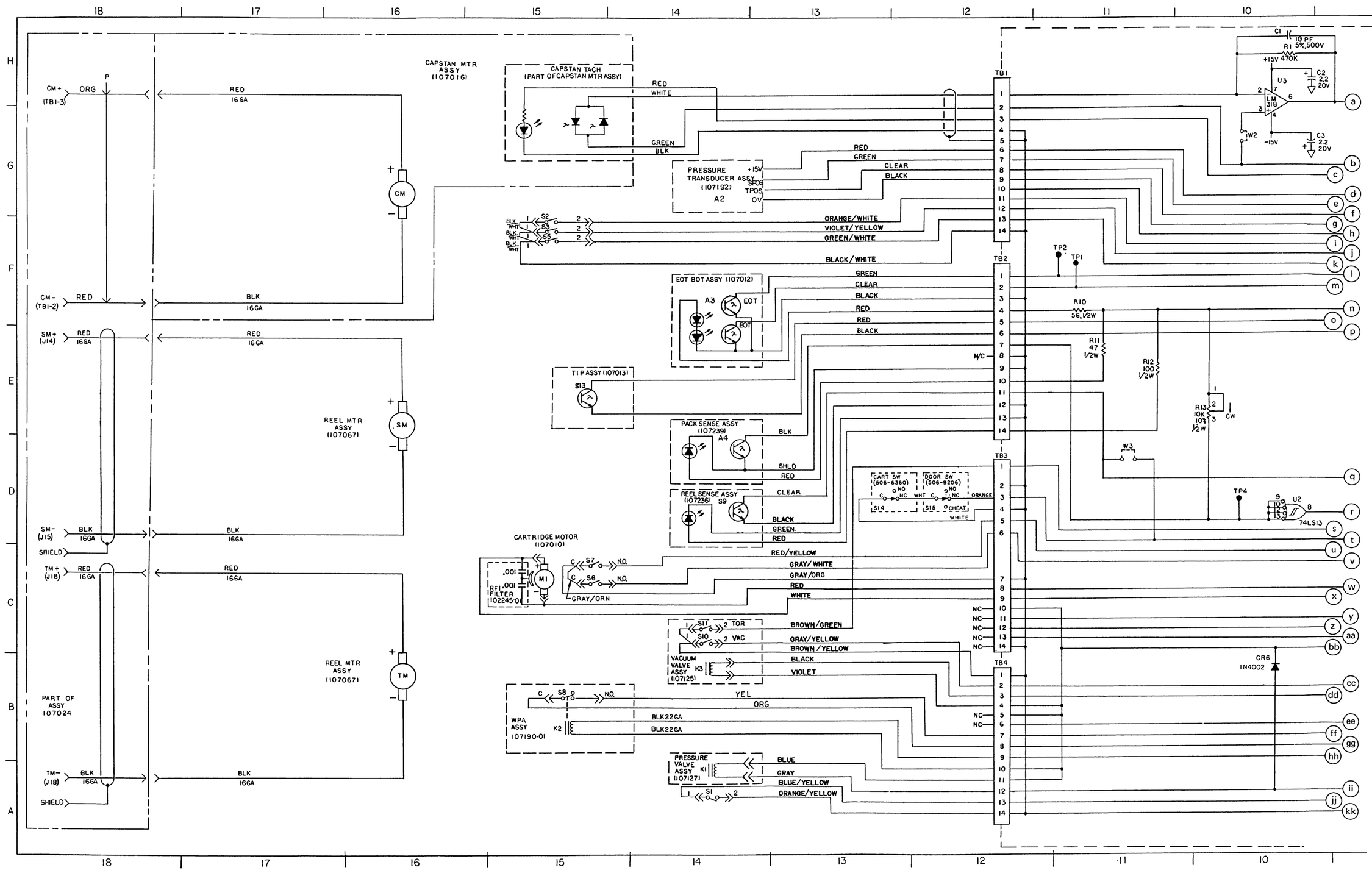


MA-5799

Figure 11 Schematic, Base Assembly (107189) (Sheet 1 of 2)

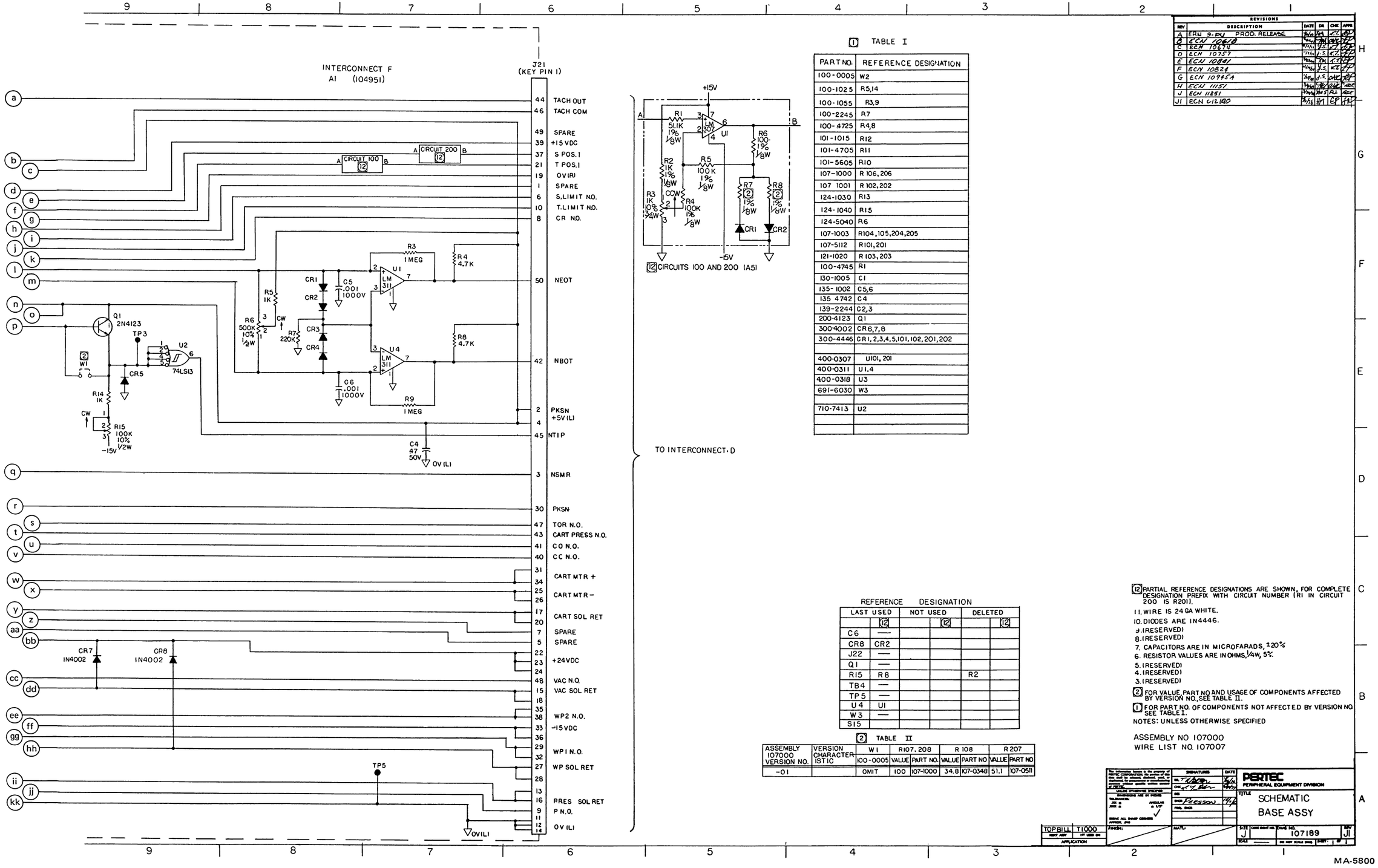
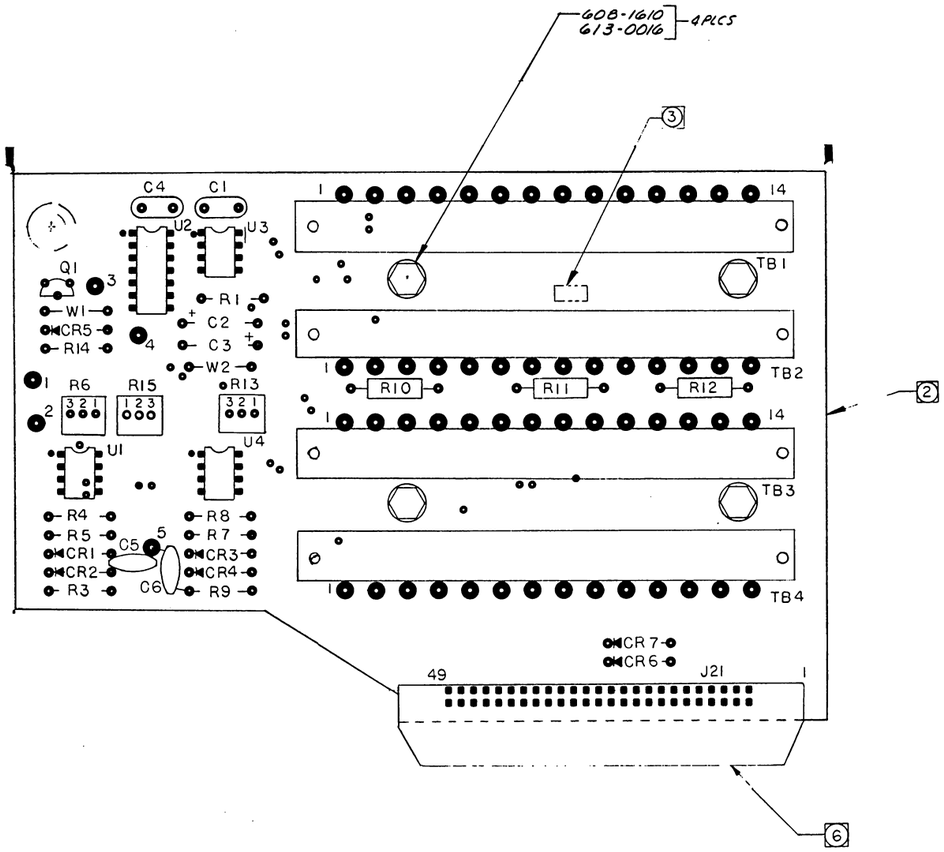
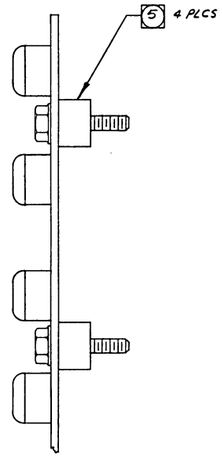


Figure 11 Schematic, Base Assembly (107189) (Sheet 2 of 2)

REVISIONS					
REV	DESCRIPTION	DATE	DR	CHK	APPR
A	ERN 9-BR PRE PROD. RELEASE	11/6/76	TLMS	TL	RP
B	ECN 9794	3/4/77	RMP	R.T.	RP
C	ECN 10150 ERN 9-PH PROD RELEASE	4/21/77 4/29/77	RJ SPM	R.T.	DAB RP
D	ECN 10618	9/30/77	SPM	SPM	RP
E	ECN 10674	11/3/77	J.S.	R.T.	RP
F	ECN 10786	11/19/77	SPM	SPM	RP
G	ECN 10824	12/9/77	J.S.	R.T.	RP
H	ECN 10889	12/23/77	J.S.	SPM	RP
J	ECN 10945A	1/25/78	J.S.	SPM	RP
J1	ECN C12190	10/18/78	HM		RP





SCHEMATIC: 107189
REF DWGS:

6 BEFORE INSTALLATION REMOVE PIN 1 ON J21.

5 INSTALL SCREW 608-1610 INTO BUSHING 613-0016 HOLDING BUSHING UNTIL TIGHT OR FLUSH WITH BOTTOM OF BOARD (4 PLCS).

4 THIS ASSEMBLY SHALL BE MADE FROM PROCESS BOARD 107101-01 REV A AND SUBSEQUENT.

3 MARK VERSION NO. AND VERSION ISSUE LETTER IN AREA SHOWN.

2 THIS ASSEMBLY SHALL BE MADE FROM PROCESS BOARD 104952-01 REV A AND SUBSEQUENT.

1 ASSEMBLE PER STANDARD MANUFACTURING METHODS.

NOTES: UNLESS OTHERWISE SPECIFIED

PART NO. 104951- REV

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UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES:
.XX ±
.XXX ±
X ±
X ±
ANGULAR ± 1/2°
BREAK ALL SHARP CORNERS
APPROX. .010

SIGNATURES	DATE
DR. TEMPERTON	11/8/76
CHK R. NOBLE	11/8/76
DES	
ENGR S. PERSSON	11/8/76
PROJ. ENGR	

PERTEC PERIPHERAL EQUIPMENT

TITLE
PCBA
INTERCONNECT F

107000	T1000
NEXT ASSY	1ST USED ON
APPLICATION	

FINISH:
MATL: SEE L/M

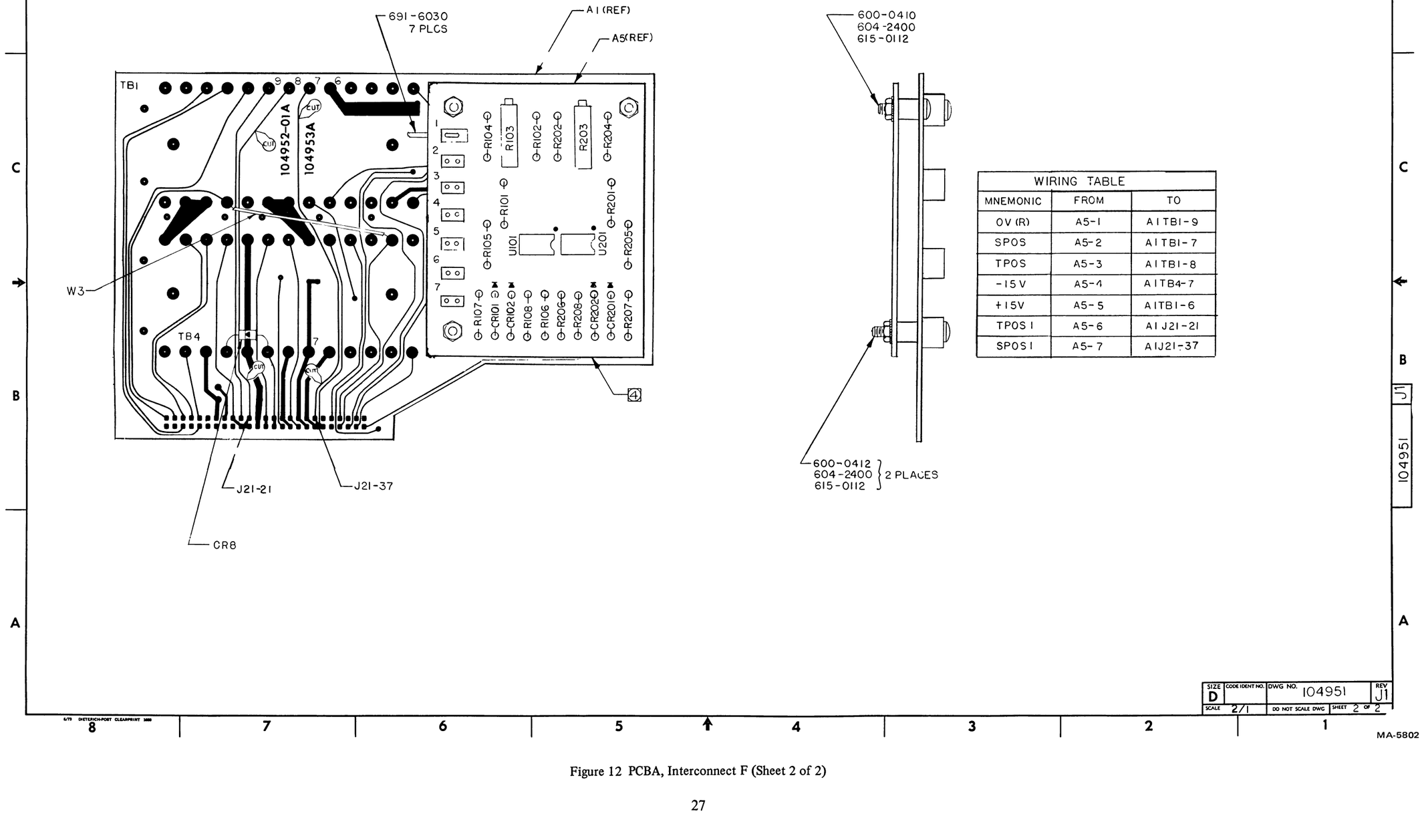
SIZE	CODE IDENT NO.	DWG NO.	REV
D	—	104951	J1

SCALE 2 1 | DO NOT SCALE DWG | SHEET 1 OF 2

104951 J1

MA-5801

Figure 12 PCBA, Interconnect F (Sheet 1 of 2)



WIRING TABLE		
MNEMONIC	FROM	TO
0V (R)	A5-1	A1TB1-9
SPOS	A5-2	A1TB1-7
TPOS	A5-3	A1TB1-8
-15V	A5-4	A1TB4-7
+15V	A5-5	A1TB1-6
TPOS1	A5-6	A1J21-21
SPOS1	A5-7	A1J21-37

SIZE	CODE IDENT NO.	DWG NO.	REV
D		104951	J1
SCALE 2/1	DO NOT SCALE DWG	SHEET 2 OF 2	

104951 J1

MA-5802

Figure 12 PCBA, Interconnect F (Sheet 2 of 2)

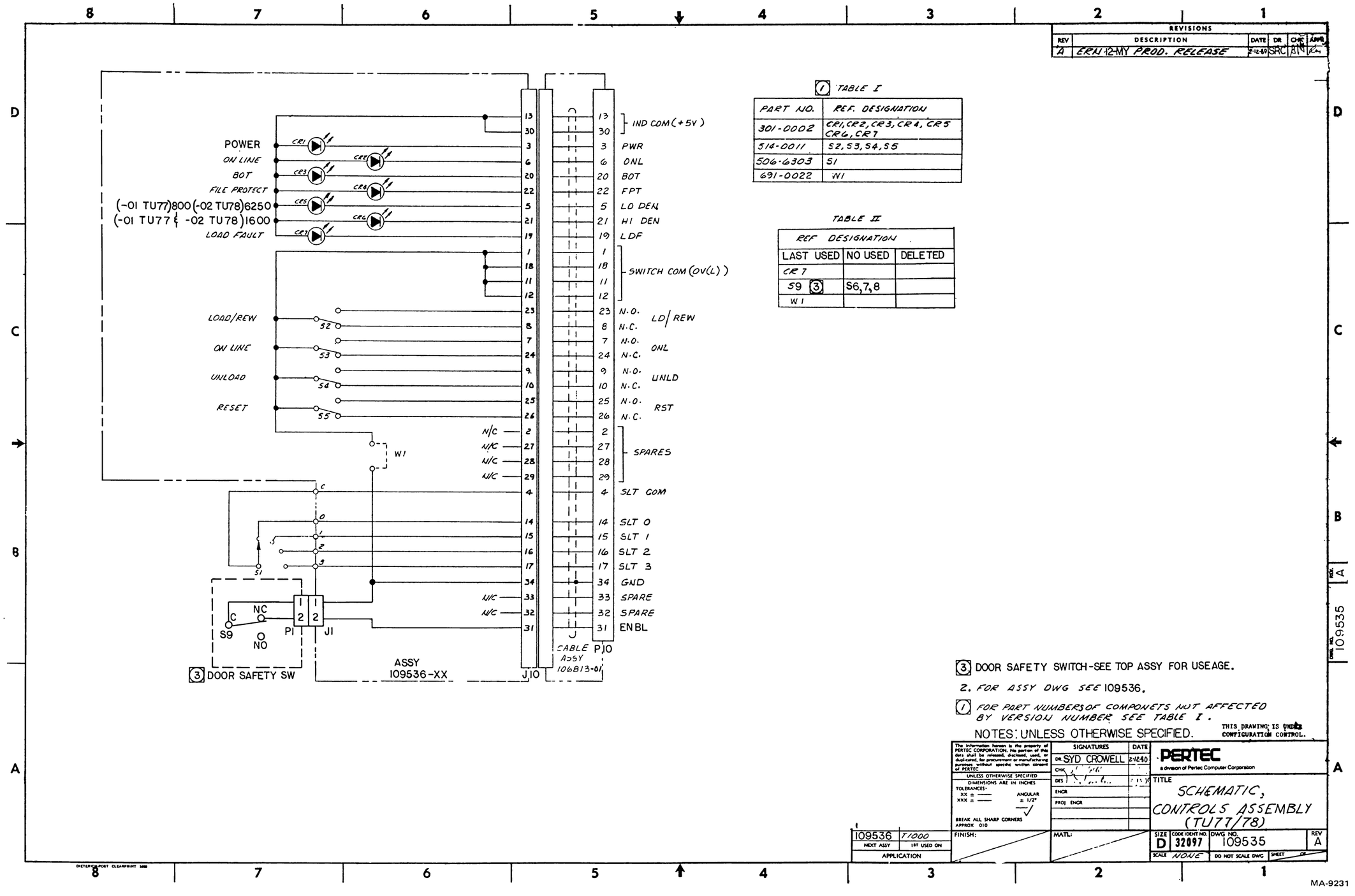
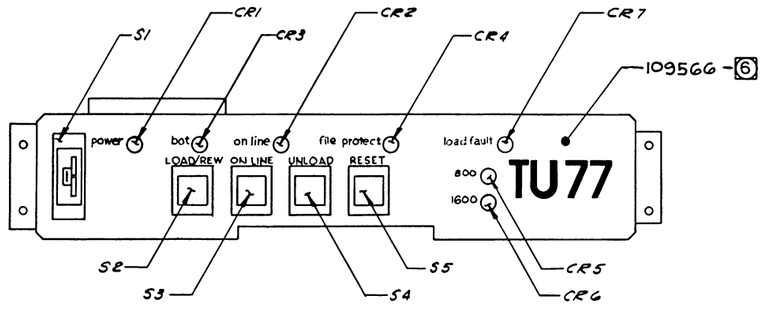
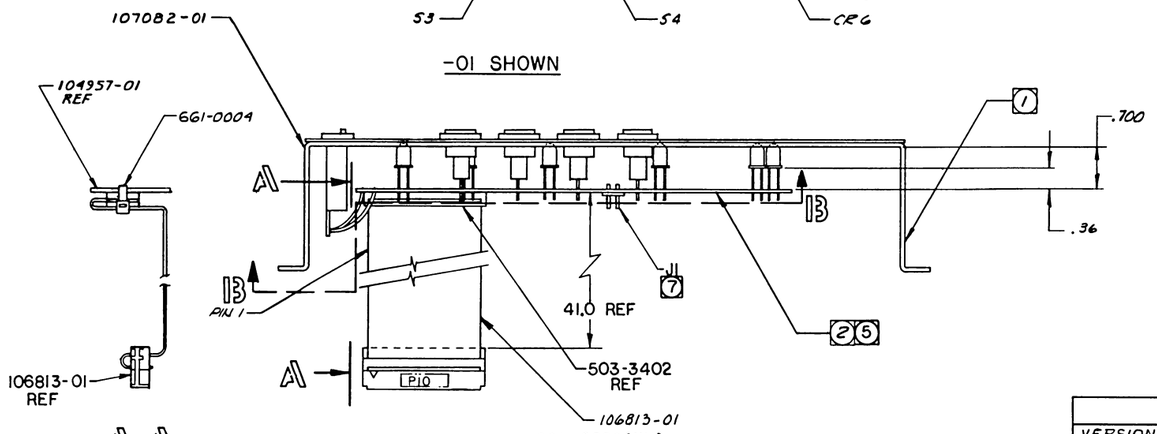
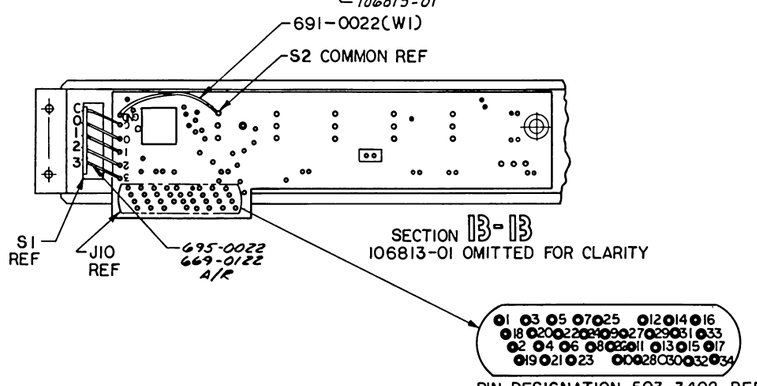


Figure 13 Schematic, Controls Assembly

REVISIONS					
REV	DESCRIPTION	DATE	DR	CHK	APPR
A	ERN 12-MY PROD REL	2-12-80	SRC	WW	
B	ECN C15737	10-28-80	L.S.	E.E	







VERSION TABLE			
VERSION NO.	MODEL	DISPLAY OVERLAY	DENSITY
-01	TU 77	109566-01	800/1600
-02	TU 78	109566-02	6250/1600

7. MAINTAIN MINIMUM AIR GAP OF .10 BETWEEN COMPONENT BODY AND BOARD.
6. SEE VERSION TABLE FOR CORRECT DISPLAY OVERLAY.
5. BEFORE INSTALLATION OF COMPONENTS, REMOVE ALL BURRS AND METAL CHIPS FROM MOUNTING SURFACE.
4. ASSEMBLE PER STANDARD MANUFACTURING METHODS.
3. RESERVED
2. THIS ASSY SHALL BE MADE FROM PROCESS BOARD 106833-01 REV. A & SUBSEQUENT.
1. MARK PART NO. 109536 , APPROPRIATE VERSION NO. AND APPLICABLE REV. LETTER, LOCATE APPROX. WHERE SHOWN.

NOTES: UNLESS OTHERWISE SPECIFIED

FOR SCHEMATIC SEE 109535

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UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES:
XX ± .03
XXX ± .010
ANGULAR ± 1/2°
BREAK ALL SHARP CORNERS
APPROX. .010

SIGNATURES	DATE
DR. SYD CROWELL	2-8-80
CHK	2-13-80
DES	3/21/80
ENGR	3/19/80
PROJ. ENG	

PERTEC
a division of Pertec Computer Corporation

TITLE: CONTROLS ASSY (TU 77/78)

TOP ASSY	T1000
NEXT ASSY	1ST USED ON
APPLICATION	

FINISH:

MATL: SEE L M

SIZE	CODE IDENT NO.	DWG NO.	REV
D	32097	109536	B

SCALE 1:1 & NOTED | DO NOT SCALE DWG | SHEET

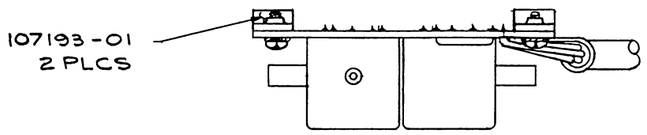
DWG. NO. 109536 REV. B

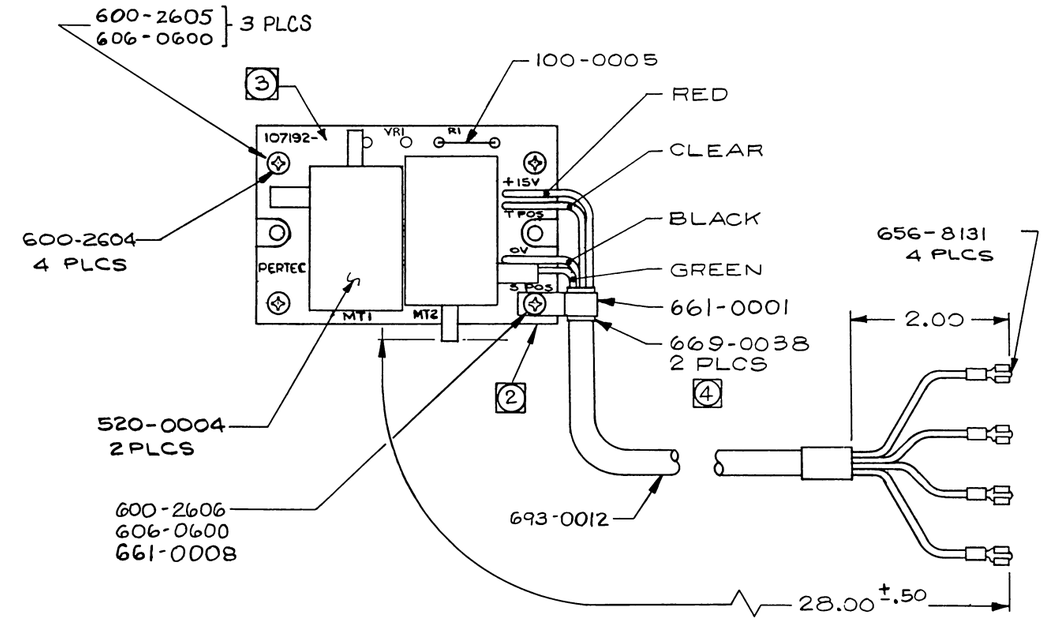
TEKTRONIX SPECIALTY CO. MAN. RED.

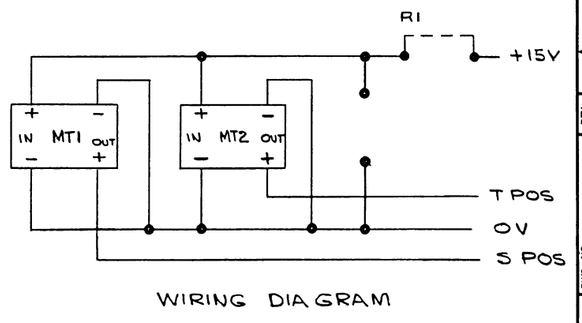
MA-9230

Figure 14 Controls Assembly

REVISIONS					
REV	DESCRIPTION	DATE	DR	CHK	APPR
A	ERN SFT PRE PROD REL	2/1/77	MV		
B	ECN 9824	4/11/77	RJ		
	ERN 9-PL PROD RELEASE	4/29/77			
C	ECN 10152	6/8/77	SL		
D	ECN 11823	9/2/78	HM		
D1	ECN 12196	10/25/78	DK		







WIRING DIAGRAM

4 TRIM SHIELD AT BOTH ENDS. NO CONNECTION REQD.

3 MARK VERSION NO. AND VERSION ISSUE LETTER IN AREA SHOWN.

2 THIS ASSEMBLY SHALL BE MADE FROM PROCESS BOARD 107194-01 REV A AND SUBSEQUENT.

1. ASSEMBLE PER STANDARD MANUFACTURING METHODS.

NOTES: UNLESS OTHERWISE SPECIFIED

PART NO. 107192 - REV

The information hereon is the property of PERTEC CORPORATION. No portion of this data shall be released, disclosed, used, or duplicated, for procurement or manufacturing purposes without specific written consent of PERTEC.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES:
.XX ± —
.XXX ± —
ANGULAR ± 1/2°
BREAK ALL SHARP CORNERS
APPROX. .010

SIGNATURES	DATE
DR.	1.28.77
CHK	2/1/77
DES	1.28.77
ENGR	2/4/77
PROJ. ENGR	

PERTEC
a division of Pertec Computer Corporation

TITLE
TRANSDUCER
P.C.B.A.

107000	T1000
NEXT ASSY	1ST USED ON
APPLICATION	

FINISH:

MATL: SEE L/M

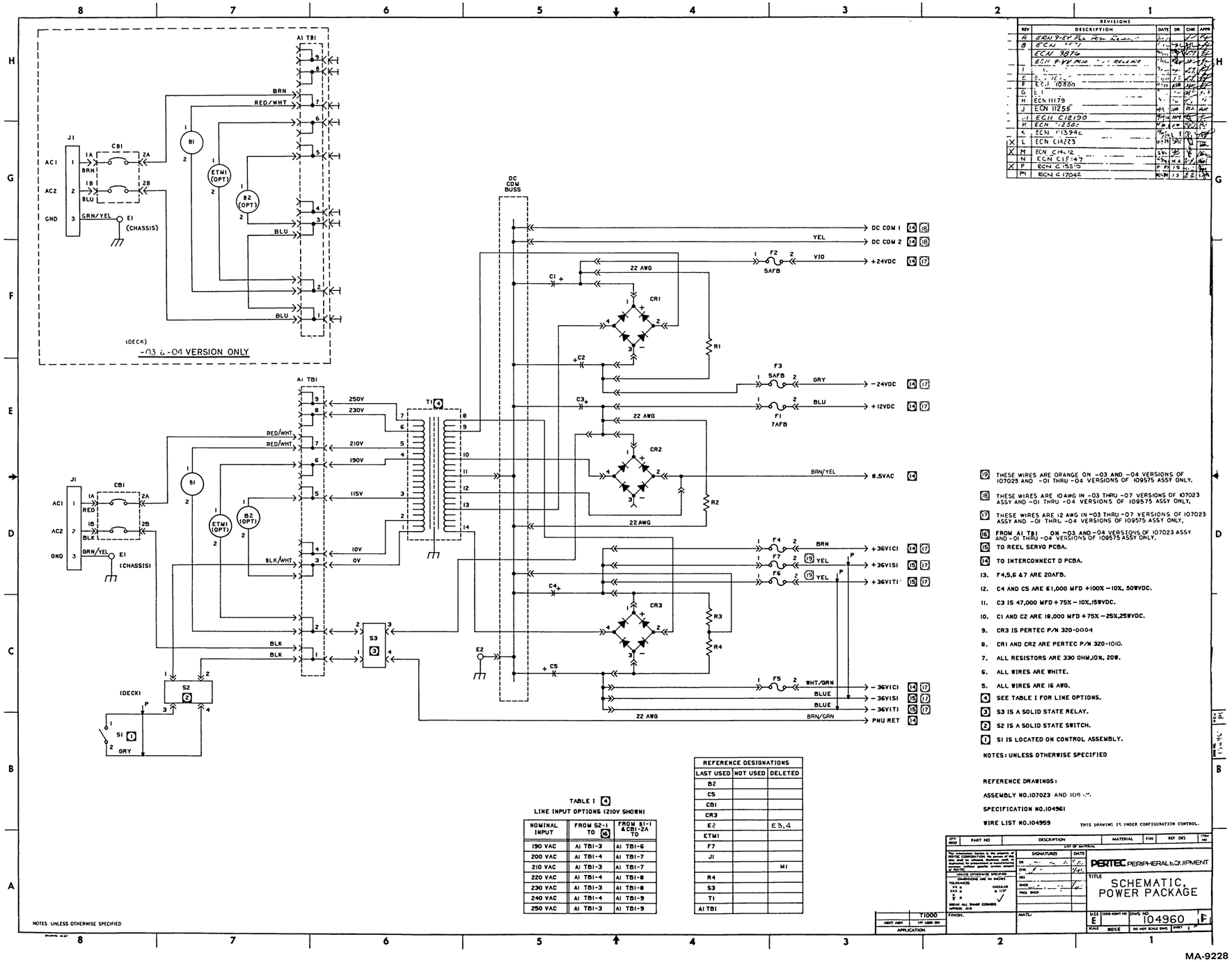
SIZE	CODE IDENT NO.	DWG NO.	REV
C	32097	107192	D1
SCALE 1:1	DO NOT SCALE DWG	SHEET 1 OF 1	

DWG. NO. 107192 REV. C

DIETZGEN-POST BLUEPRINT 1120

MA-5804

Figure 15 PCBA, Transducer



REVISIONS					
REV		DESCRIPTION	DATE	DR	CHK	APPR
	A	ECN 9769 Per ECO [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	B	ECN [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		ECN 9876	[illegible]	[illegible]	[illegible]	[illegible]
		ECN 9-VV Per ECO [illegible] RELEASE	[illegible]	[illegible]	[illegible]	[illegible]
	D	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	E	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	F	ECN 10800	[illegible]	[illegible]	[illegible]	[illegible]
	G	ECN [illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	H	ECN 11179	[illegible]	[illegible]	[illegible]	[illegible]
	J	ECN 11255	[illegible]	[illegible]	[illegible]	[illegible]
	K	ECN C12190	[illegible]	[illegible]	[illegible]	[illegible]
	K	ECN 11394C	[illegible]	[illegible]	[illegible]	[illegible]
X	L	ECN C14223	[illegible]	[illegible]	[illegible]	[illegible]
X	M	ECN C14512	[illegible]	[illegible]	[illegible]	[illegible]
	N	ECN C15147	[illegible]	[illegible]	[illegible]	[illegible]
X	P	ECN C15519	[illegible]	[illegible]	[illegible]	[illegible]
	R	ECN C17045	[illegible]	[illegible]	[illegible]	[illegible]

TABLE I [4]
LINE INPUT OPTIONS (210V SHOWN)

NOMINAL INPUT	FROM S2-1 TO [16]	FROM S1-1 & CB1-2A TO
190 VAC	A1 TB1-3	A1 TB1-6
200 VAC	A1 TB1-4	A1 TB1-7
210 VAC	A1 TB1-3	A1 TB1-7
220 VAC	A1 TB1-4	A1 TB1-8
230 VAC	A1 TB1-3	A1 TB1-8
240 VAC	A1 TB1-4	A1 TB1-9
250 VAC	A1 TB1-3	A1 TB1-9

REFERENCE DESIGNATIONS		
LAST USED	NOT USED	DELETED
B2		
C5		
CB1		
CR3		
E2		E3,4
ETM1		
F7		
J1		
		M1
R4		
S3		
T1		
A1 TB1		

[19] THESE WIRES ARE ORANGE ON -03 AND -04 VERSIONS OF 107023 AND -01 THRU -04 VERSIONS OF 109575 ASSY ONLY.

[18] THESE WIRES ARE 10AWG IN -03 THRU -07 VERSIONS OF 107023 ASSY AND -01 THRU -04 VERSIONS OF 109575 ASSY ONLY.

[17] THESE WIRES ARE 12 AWG IN -03 THRU -07 VERSIONS OF 107023 ASSY AND -01 THRU -04 VERSIONS OF 109575 ASSY ONLY.

[16] FROM A1 TB1 ON -03 AND -04 VERSIONS OF 107023 ASSY AND -01 THRU -04 VERSIONS OF 109575 ASSY ONLY.

[15] TO REEL SERVO PCBA.

[14] TO INTERCONNECT D PCBA.

13. F4,5,6 & 7 ARE 20AFB.

12. C4 AND C5 ARE 61,000 MFD +100X −10%, 50WVDC.

11. C3 IS 47,000 MFD +75X −10%,15WVDC.

10. C1 AND C2 ARE 18,000 MFD +75X −25%,25WVDC.

9. CR3 IS PERTEC P/N 320-0004

8. CR1 AND CR2 ARE PERTEC P/N 320-1010.

7. ALL RESISTORS ARE 330 OHM,10%, 20W.

6. ALL WIRES ARE WHITE.

5. ALL WIRES ARE 16 AWG.

[4] SEE TABLE I FOR LINE OPTIONS.

[3] S3 IS A SOLID STATE RELAY.

[2] S2 IS A SOLID STATE SWITCH.

[1] S1 IS LOCATED ON CONTROL ASSEMBLY.

NOTES: UNLESS OTHERWISE SPECIFIED

REFERENCE DRAWINGS:

ASSEMBLY NO.107023 AND 109575

SPECIFICATION NO.104961

WIRE LIST NO.104959

THIS DRAWING IS UNDER CONFIGURATION CONTROL.

QTY REQD	PART NO	DESCRIPTION	MATERIAL	FIN	REF DES	ITEM NO

LIST OF MATERIAL

SIGNATURES	DATE
DR	
CHK	
DES	
ENGR	
PROJ ENGR	

PERTEC PERIPHERAL EQUIPMENT

TITLE: SCHEMATIC, POWER PACKAGE

SIZE E | CODE IDENT NO | DWG NO 104960 | REV P

SCALE NONE | DO NOT SCALE DWG | SHEET 1

T1000 | NEXT ASSY | APPLICATION

NOTES UNLESS OTHERWISE SPECIFIED

MA-9228

Figure 16 Schematic, Power Package

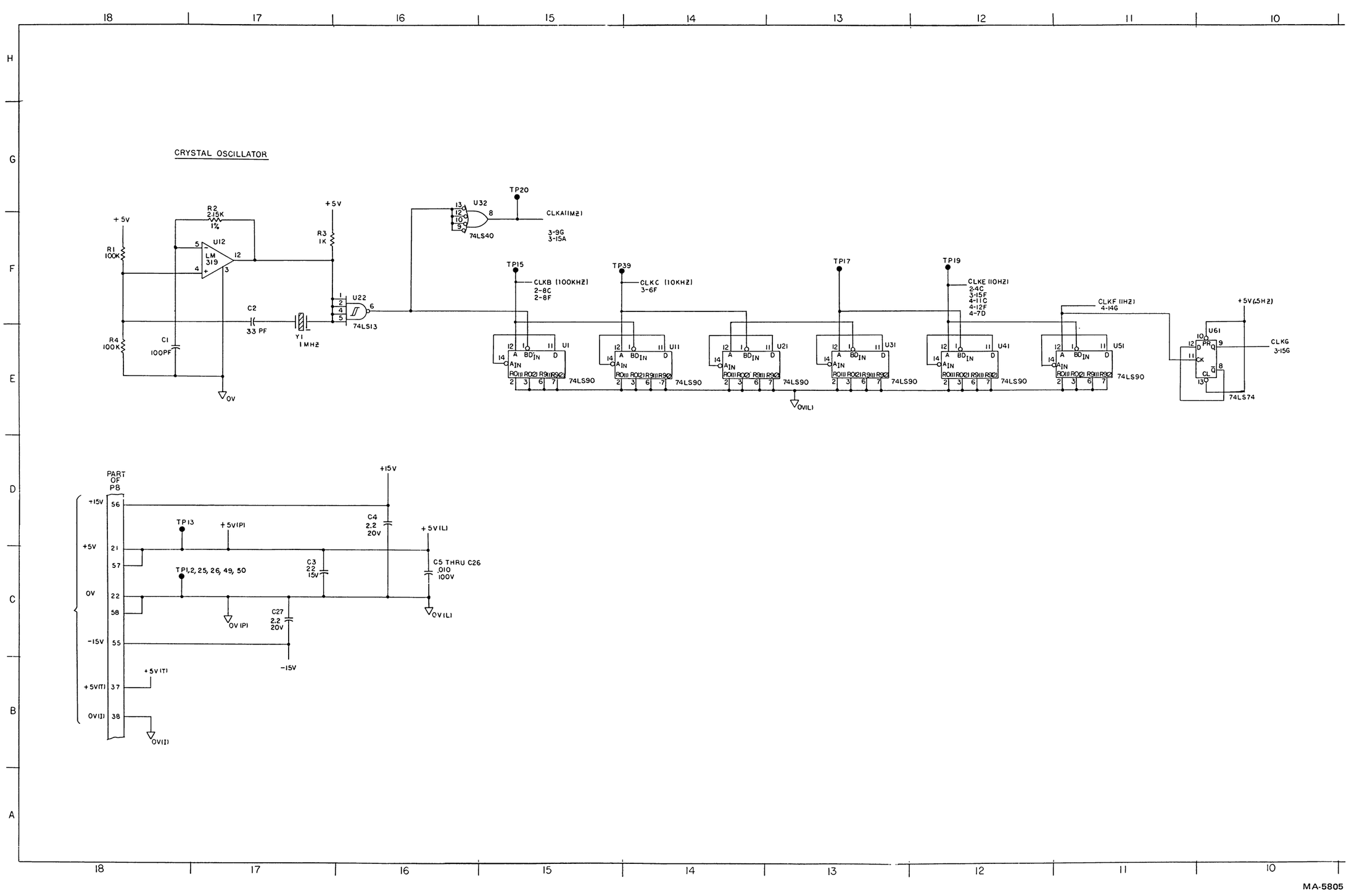


Figure 17 Schematic, Control M (Sheet 1 of 10)

TABLE I (1)

REFERENCE DESIGNATION	
100-1015	R5 THRU 11
100-1025	R3,
100-1035	R14, 16
100-1045	R1, 4, 15
	R25
	R 26
100-4725	R17, 18, 13
	R19 THRU R24
107-2151	R2
120-0003	U16, 96, 143, 206
130-3305	C2
130-1015	C1
132 2752	C32, 33, 37, 38
135-1051	C5 THRU 26, 29, 30, 31, 34, 35, 36, 46, 47
139-2244	C4, 27
139-2262	C3
330-0475	VR1
400-0318	U91
400-0319	U12
514-0003	S1
524-1000	Y1
700-5452	U4, 5, 14, 15, 141, 142, 151, 152, 211
700-7400	U65
710-4132	U171
710-4193	U163, 214, 215
710-7400	U24, 33, 42, 43, 45, 53, 54, 74, 83, 103, 111, 115, 125, 131, 133, 144, 158, 175, 183, 186, 193, 194, 201, 204, 213
710-7404	64, 72, 102, 104, 132, 155, 173, 176, 181, 184, 191,
710-7410	U46, 71, 114, 134, 172, 174, 182, 202, 56, 23, 116
710-7413	U22, 112
710-7420	U73, 75, 203
710-7430	U105, 121
710-7440	U55, 32, 154
710-7442	U185
710-7474	U25, 26, 34, 35, 36, 61, 62, 63, 81, 82, 92, 93, 94, 95, 113, 122, 126, 135, 136, 145, 146, 164, 166, 192, 196, 205
710-7490	U1, 11, 21, 31, 41, 51, 165
710-7493	U84, 85, 86, 123, 124, 195, 76, JO1
710-7414	U153, 44, 212

TABLE XI (14)

OPTION	CODE	OMIT
SELECTABLE	A	W17
PERMANENT STATUS	B	W1
REMOTE DENSITY	C	W2
ON LINE AT BOT	D	W3
REMOTE 7TK/9K	E	W4

(2) TABLE II

MODEL	SPD (IPS)	OPTION CODE (14)	ASSEMBLY 104746 VERSION NO.	100-0005 W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	691-6030 W17	R19 THRU R24 100-1015	C39 THRU C45 135-1031	C35 PN	C35 VALUE	R25	R26
STD	125	A	-01	USE	USE	USE	USE	OMIT	USE	USE	OMIT	OMIT	OMIT	USE	OMIT	OMIT	OMIT	USE	OMIT	OMIT	OMIT	OMIT	135-1031	.01	USE	USE
STD	125	B,C	-02	OMIT	OMIT	USE	USE	OMIT	USE	USE	OMIT	OMIT	OMIT	USE	OMIT	OMIT	OMIT	USE	OMIT	USE	USE	USE	135-1002	.001	OMIT	OMIT
STD	125	A,C	-03	USE	OMIT	USE	USE	OMIT	USE	USE	OMIT	OMIT	OMIT	USE	OMIT	OMIT	OMIT	USE	OMIT	OMIT	OMIT	OMIT	↓	.01	USE	USE
GCR	125	A	-11	USE	USE	USE	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	OMIT	OMIT	↓	.01	USE	USE
GCR	125	B,C	-12	OMIT	OMIT	USE	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	USE	USE	OMIT	USE	OMIT	OMIT	USE	USE	USE	↓	.001	OMIT	OMIT
GCR	125	A,C	-13	USE	OMIT	USE	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	OMIT	OMIT	↓	.01	USE	USE
STD	75	A	-21	USE	USE	USE	USE	USE	OMIT	USE	OMIT	OMIT	USE	OMIT	OMIT	USE	USE	USE	USE	OMIT	OMIT	OMIT	↓	.01	USE	USE
STD	75	B,C	-22	OMIT	OMIT	USE	USE	USE	OMIT	USE	OMIT	OMIT	USE	OMIT	OMIT	USE	USE	USE	USE	USE	OMIT	OMIT	↓	.01	OMIT	OMIT
GCR	75	A	-31	USE	USE	USE	USE	USE	USE	USE	USE	USE	USE	USE	USE	USE	USE	USE	USE	OMIT	OMIT	OMIT	↓	.01	OMIT	OMIT
GCR	75	B,C	-32	OMIT	OMIT	USE	USE	USE	USE	USE	USE	USE	USE	USE	USE	USE	USE	USE	USE	USE	OMIT	OMIT	↓	.01	OMIT	OMIT

REVISIONS				
REV	DESCRIPTION	DATE	BY	CHK	APPR
A	ERN 9-0L PRE PROD RELEASE	4/4/77	RJ	RJ	
B	ECN 9960	5/20/77	RJ	RJ	
C	ECN 9825	5/24/77	RJ	RJ	
D	ECN 9874	5/31/77	RJ	RJ	
E	ECN 9960A	6/27/77	RJ	RJ	
F	ECN 9928	7/14/77	LJ	VRE	
G	ECN 10100	9/6/77	CJ	VRE	
	ERN 9-0E PRODUCTION RELEASE	9/6/77	CJ	VRE	
H	ECN 10393B	10-11-77	ATB	VRE	
J	ECN 10470A	10-27-77	DP	VRE	
K	ECN 10471	11-7-77	ATB	VRE	
L	ECN 10671	11/29/77	DP	VRE	
M	ECN 10759	12/20/77	ATB	VRE	
N	ECN 10899	1/19/78	ATB	VRE	
P	ECN 11017	2/14/78	LJ	VRE	
R	ECN 11080	3/6/78	LJ	VRE	
S	ECN 10991	3/16/78	LJ	VRE	
T	ECN 11283	4/12/78	TM	VRE	
U	ECN 11328	4/26/78	TM	VRE	
V	ECN 11359	5/8/78	DPL	VRE	
W	ECN 11380	5-24-78	MM	VRE	
Y	ECN 11487	6-23-78	MM	VRE	
Z	ECN 11620	8/17/78	MM	VRE	
AA	ECN 11822				
AA1	ECN C12190				
AB	ECN C12646				
AC	ECN C12963				
AD	ECN C13086A				
AE	ECN C13646A				
AF	ECN C13705				

TABLE IV (4)

I.C. VOLTAGE AND GROUND PIN NO.						
TYPE	+5V(L)	+15V	OVL	-15V	OV(I)	+5V(+)
LM318		7		4		
LM319		11		6		
120-2023	14					
74LS00	14		7			
74LS04	14		7			
74LS10	14		7			
74LS20	14		7			
74LS30	14		7			
74LS40	14		7			
74LS42	14		7			
74LS74	14		7			
74LS90	5		10			
74LS93	5		10			
74LS193	16		8			
75452	8		4			
74LS14	14		7			
74LS132	14		7			
120-0001					7	14

REFERENCE DESIGNATION

LAST USED	NOT USED	DELETED
C47		C28
R26		R12
S1		
U215	13	
W17		
Y1		
TP72	TP3 THRU 12, 14, 43	
VR1		

(5) TABLE V

SPARE LOGIC ELEMENTS	
TYPE	REFERENCE DESIGNATION
120-0003	U143H, I, K, L, M, U206J, U16H
120-0001	U161K U162A, B, C, D, E, F, G, H
74LS00	U125D, U74B
74LS04	U102E, U184E, U72C, U181F, U102E
74LS13	U22B
74LS42	U185C, D
74LS74	U61B, U135B, U166A
75452	U148, U211A
74LS14	U44D

(15) RESISTOR NETWORKS U161 & 162 (120 0001) ARE SPECIFIED AT TOP ASSY.

(14) FOR OPTION CODE SEE TABLE XI.

(13) U2, 3, 6 THRU 10, 13, 17 THRU 20, 27 THRU 30, 37 THRU 40, 47 THRU 50, 57 THRU 60, 66 THRU 70, 77 THRU 80, 87 THRU 90, 97 THRU 100, 106 THRU 110, 117 THRU 120, 127 THRU 130, 137 THRU 140, 147 THRU 150, 157 THRU 160, 167 THRU 170, 177 THRU 180, 187 THRU 190, 197 THRU 200, 207 THRU 210

(12) DELETE

11 SIGNALS ARE CROSS REF BETWEEN SHEETS AND WITHIN A SHEET BY NUMBERS APPEARING UNDER THE ASSOCIATED LOGIC TERM MNEMONIC. THE FIRST NO. IS THE SHEET NO. AND THE SECOND NO. IS THE ZONE NO.

10 (RESERVED)

9 (RESERVED)

8 (RESERVED)

7. CAPACITOR VALUES ARE IN MICROFARADS, 20%, 100V.

6. RESISTOR VALUES ARE IN OHMS, 5%, 1/4W.

(5) FOR SPARE LOGIC ELEMENTS, SEE TABLE V.

(4) FOR I. C. GENERIC TYPE NO AND GROUND/VOLTAGE PIN NOS. SEE TABLE IV.

3 (RESERVED)

(2) FOR VALUE, PART NUMBER AND USAGE OF COMPONENTS AFFECTED BY VERSION NUMBER, SEE TABLE II.

(1) FOR PART NUMBER OF COMPONENTS NOT AFFECTED BY VERSION NUMBER, SEE TABLE I.

NOTES: UNLESS OTHERWISE SPECIFIED

ASSEMBLY NO. 104746

SPECIFICATION NO.

REFERENCE DRAWINGS

104746	1000		
NEXT ASSY	1ST USED ON		
APPLICATION			

SIGNATURES / DATE

DRN S. Peterson 7/7/78

PERTEC PERIPHERAL EQUIPMENT DIVISION

TITLE SCHEMATIC CONTROL M

SIZE J | CODE IDENT NO. | DWG NO. 104745 | REV AF

SCALE — | DO NOT SCALE DWG | SHEET 2 OF 3

MA-5806

Figure 17 Schematic, Control M (Sheet 2 of 10)

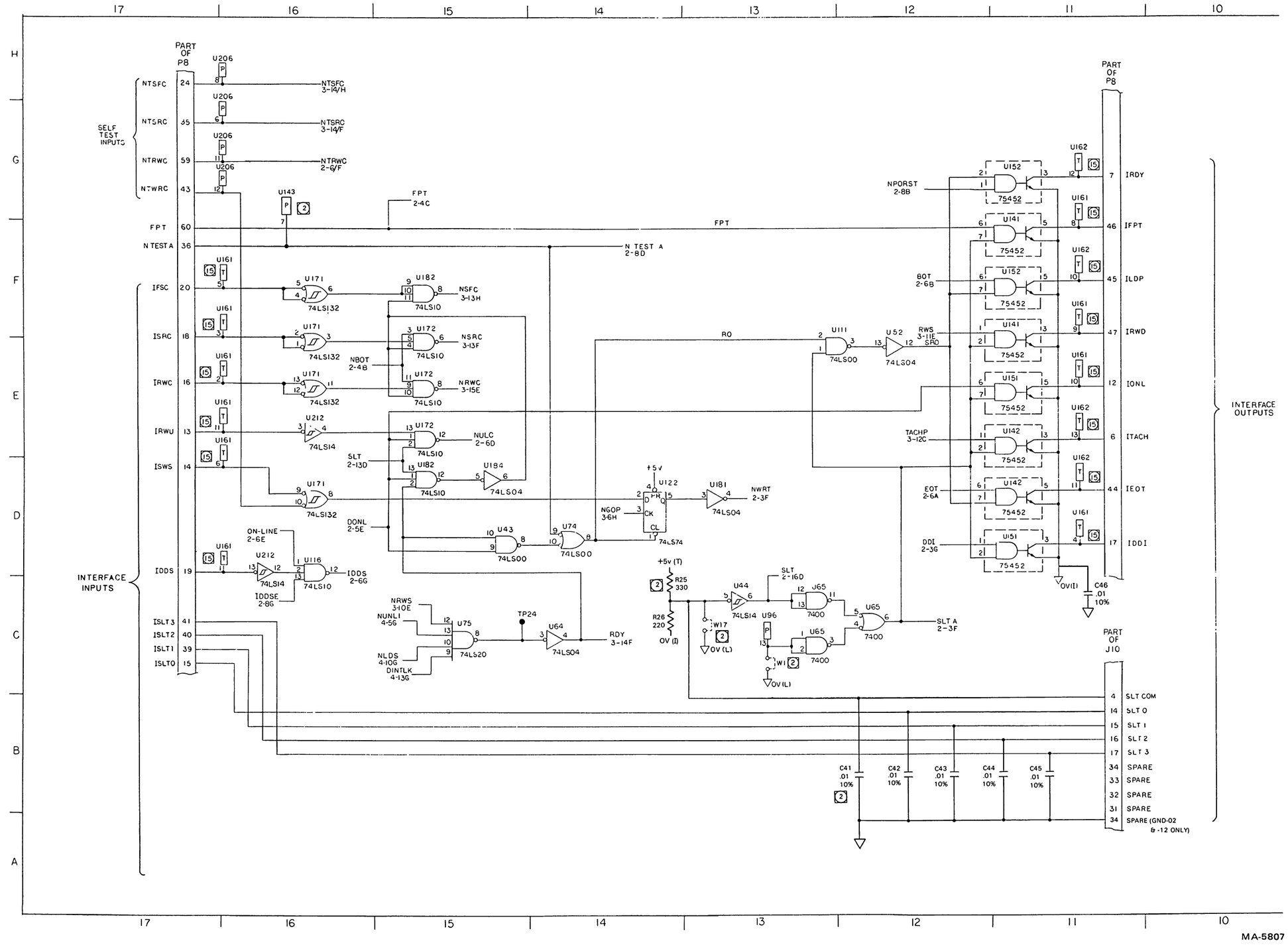


Figure 17 Schematic, Control M (Sheet 3 of 10)

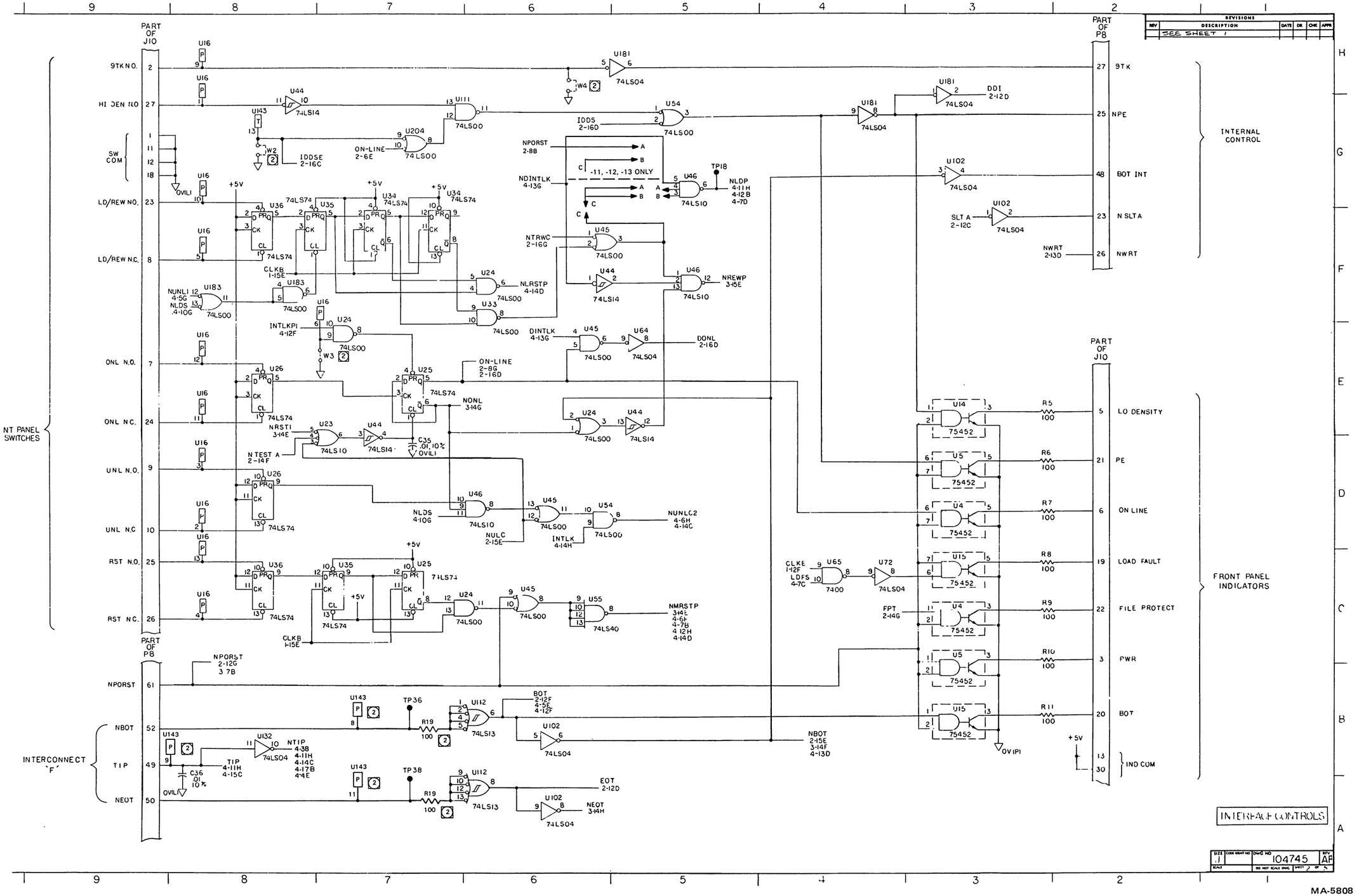


Figure 17 Schematic, Control M (Sheet 4 of 10)

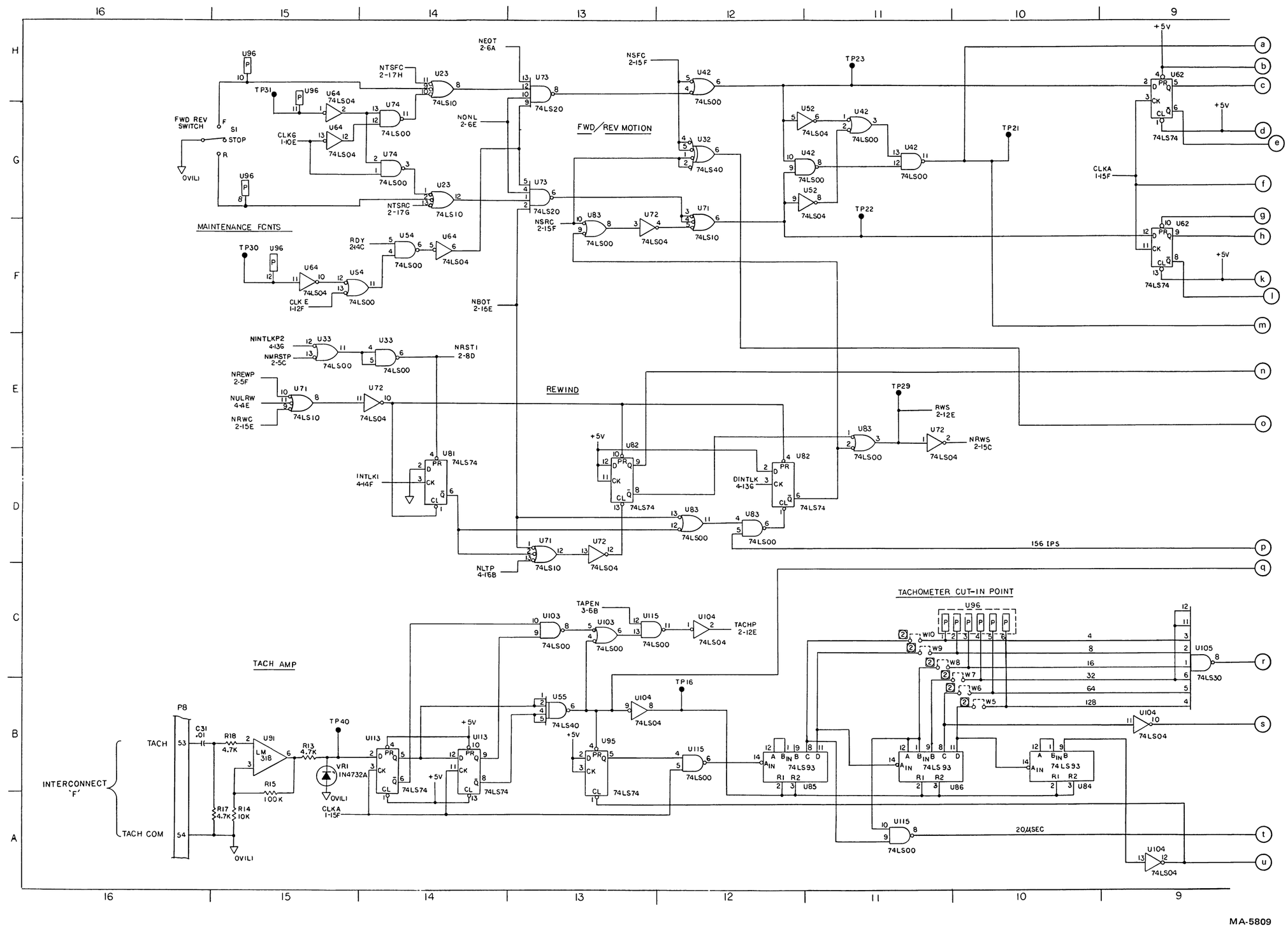


Figure 17 Schematic, Control M (Sheet 5 of 10)

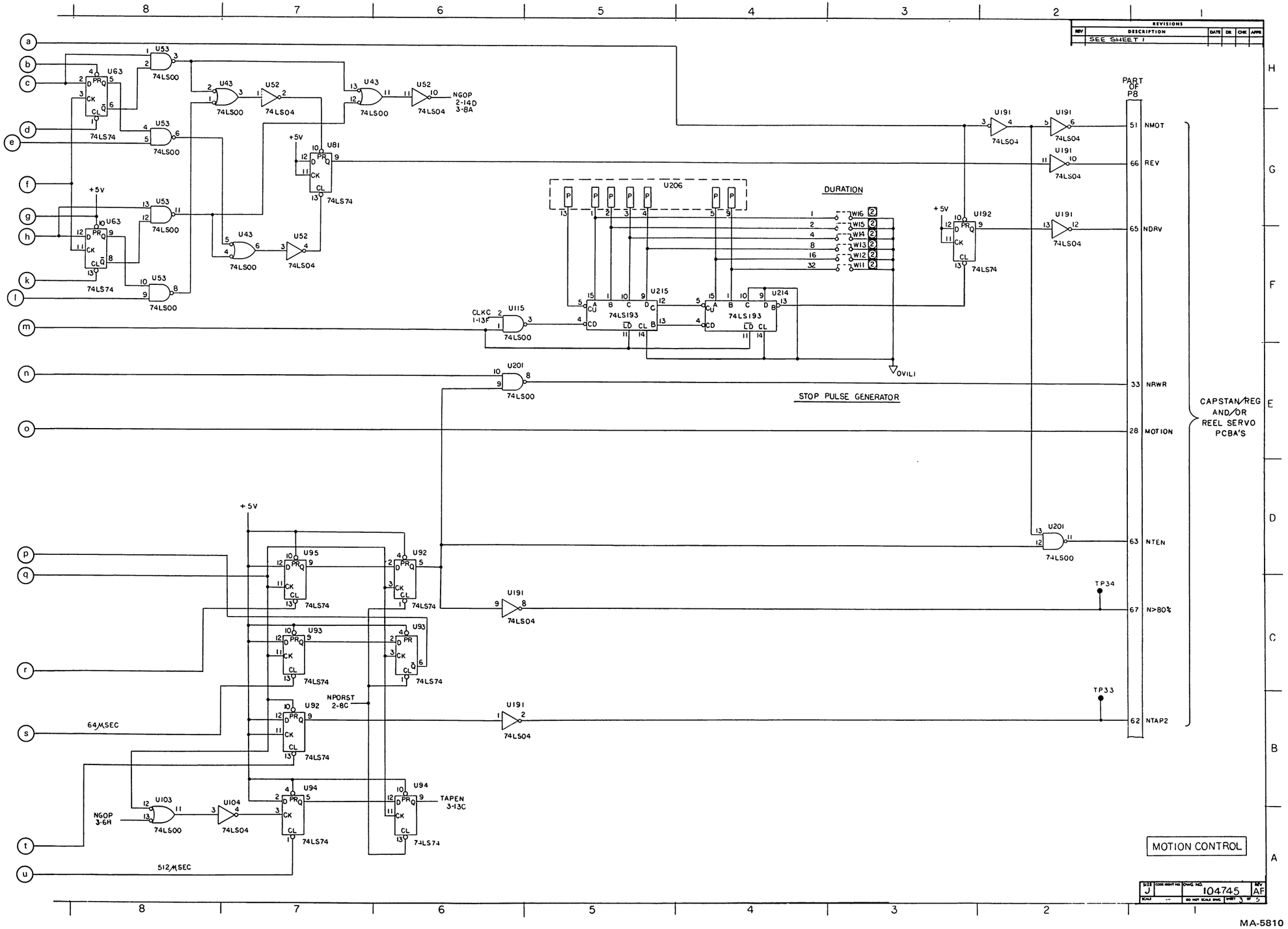
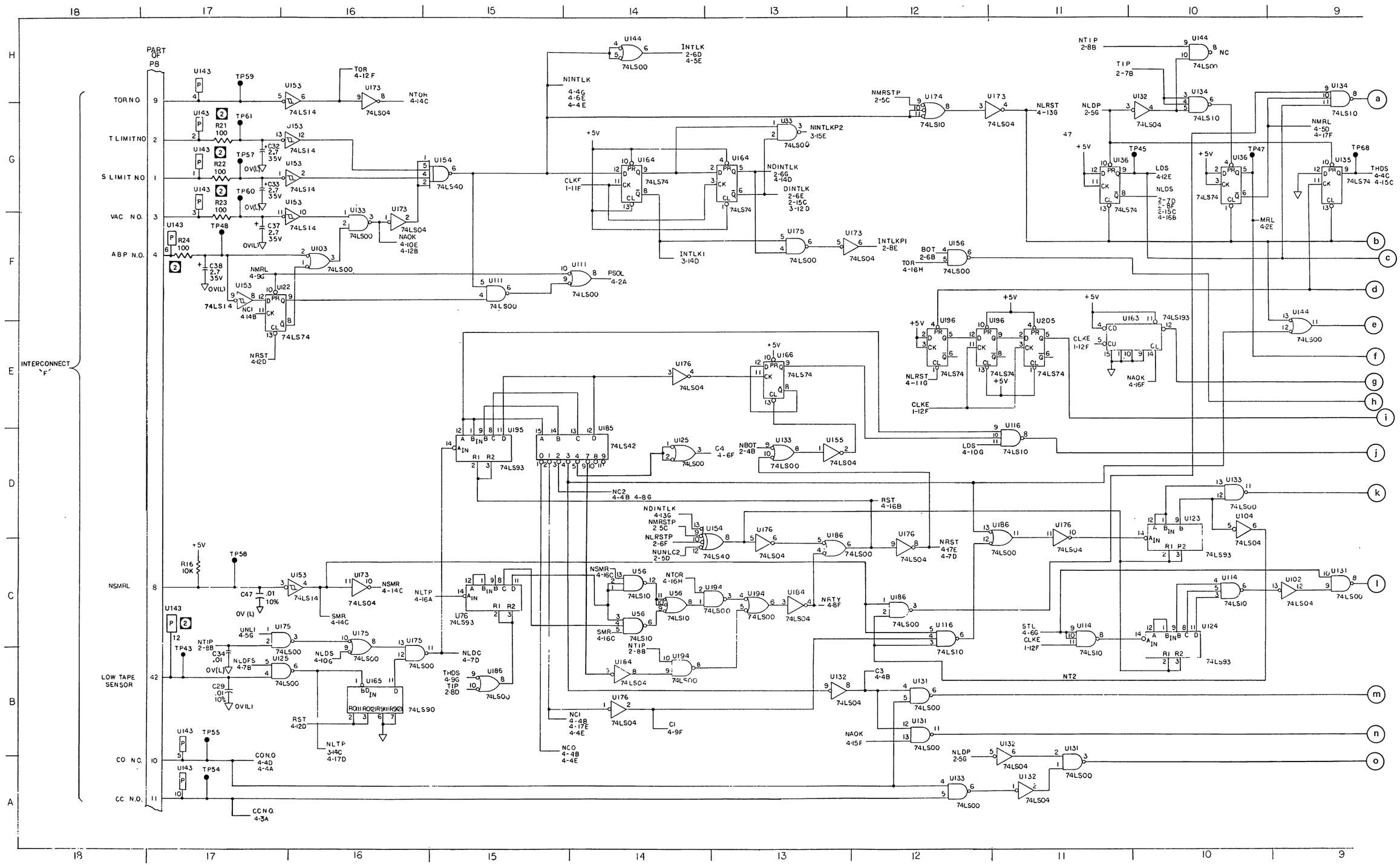
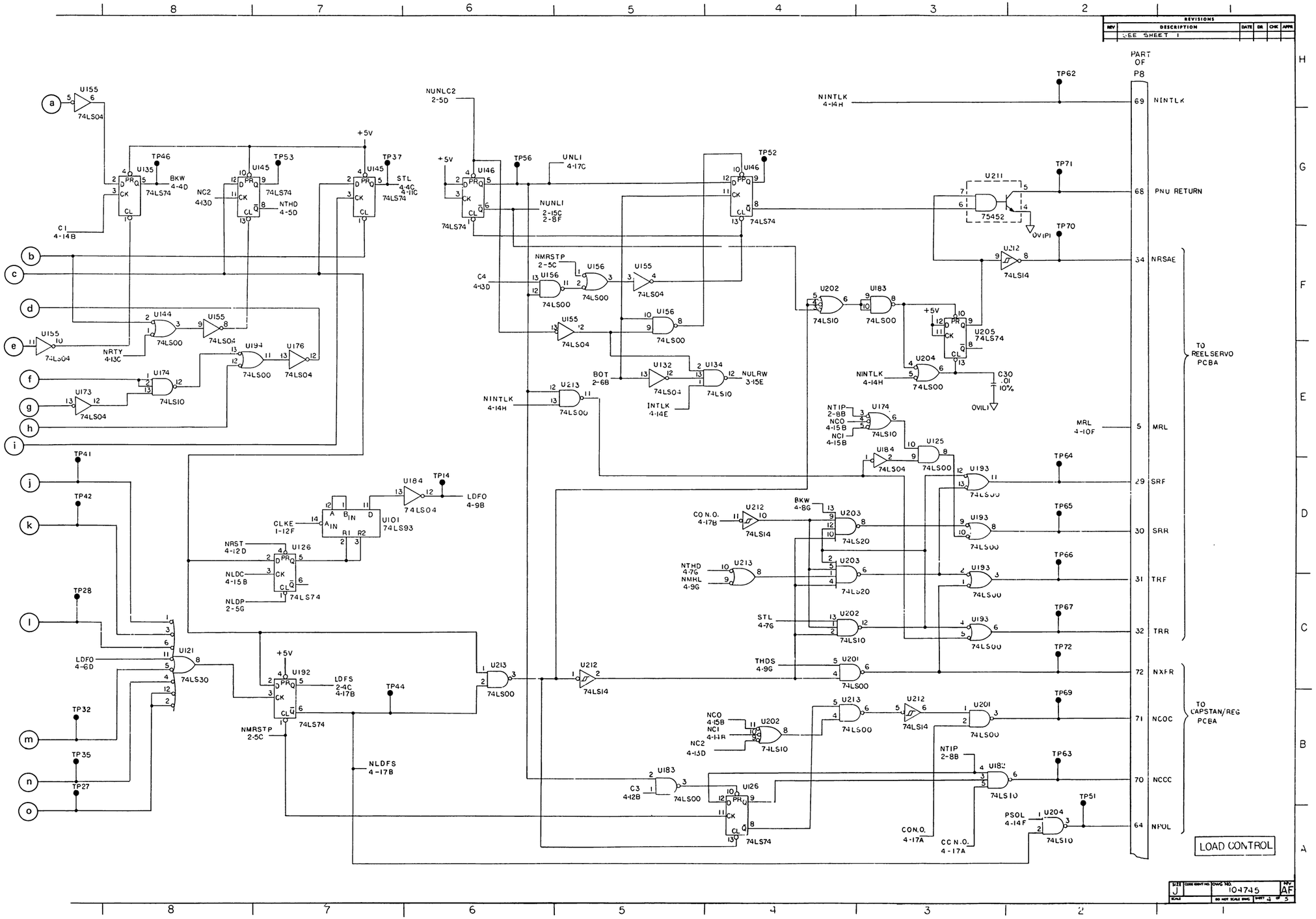


Figure 17 Schematic, Control M (Sheet 6 of 10)



MA-5811

Figure 17 Schematic, Control M (Sheet 7 of 10)



MA-5812

Figure 17 Schematic, Control M (Sheet 8 of 10)

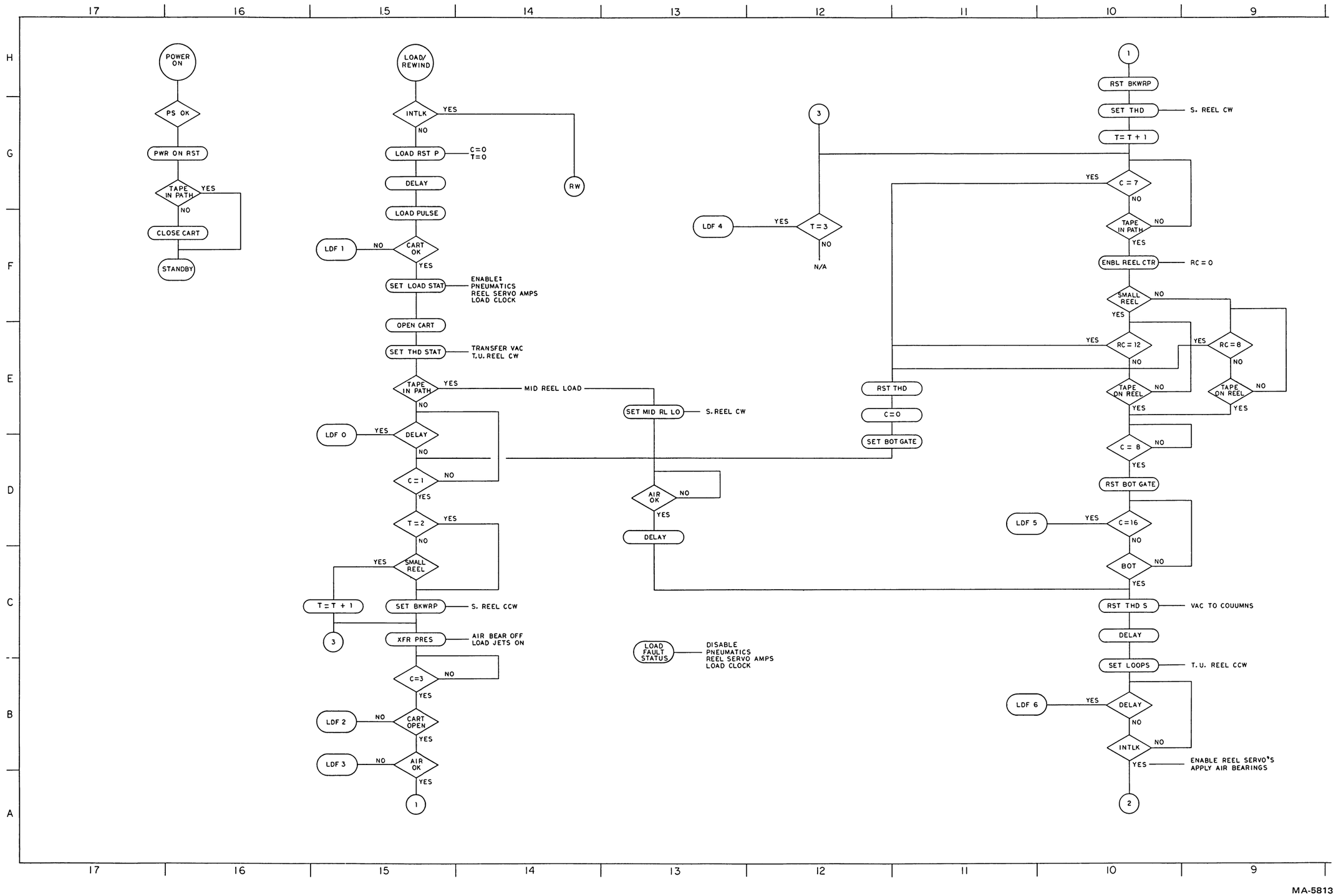


Figure 17 Schematic, Control M (Sheet 9 of 10)

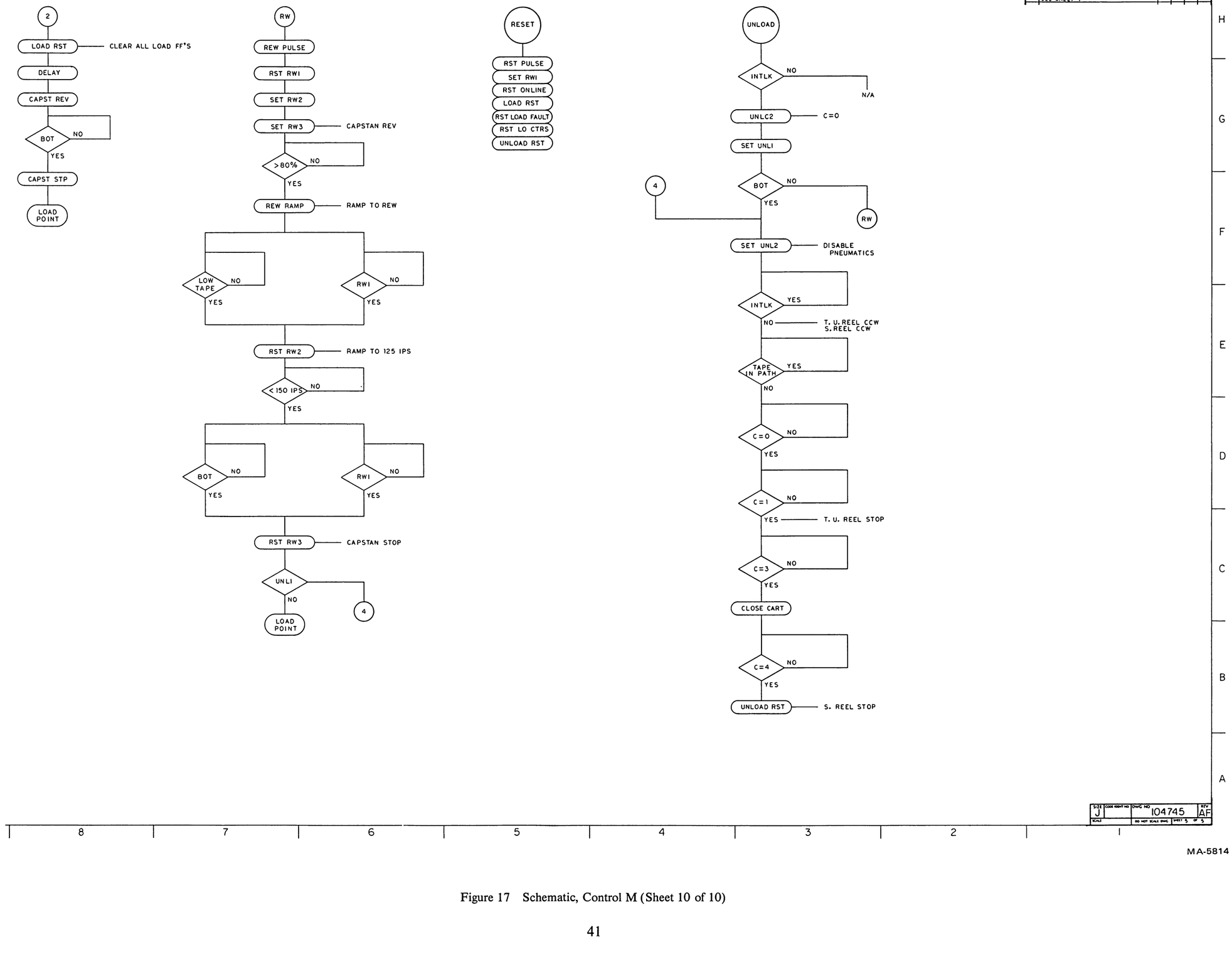


Figure 17 Schematic, Control M (Sheet 10 of 10)

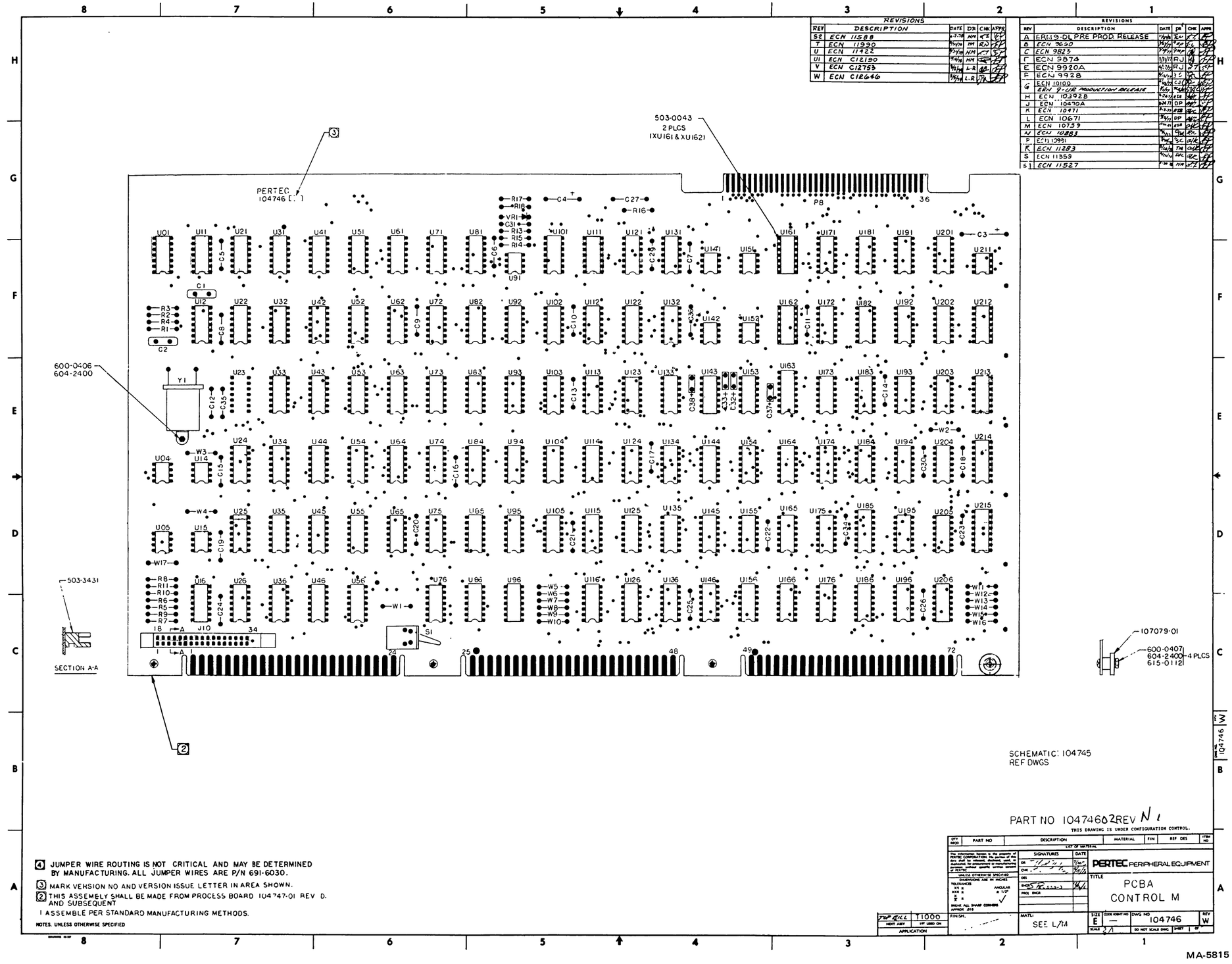


Figure 18 PCBA, Control M

TABLE I (1)

PART NO	REFERENCE DESIGNATION
100-1015	R5,6,7,8,9,10,11,17,18,19,20
100-1025	R3
100-1035	R16,21
100-1045	R1,4,15
100-2215	R22
100-2225	R14
100-3315	R23
100-4725	R12,13
107-2151	R2
120-0003	U6,96,162,224
130-1015	C27
130-3305	C28
135-1002	C40
135-1031	C1 THRU 26,32,39,41,42,43, 48,50,51
135-1032	C38
139-2244	C30,31,44,45,46,47
139-2262	C29
300-4446	CR1
330-0475	VR1
400-0318	U91
400-0319	U21
514-0003	S1
524-1000	Y1
700-5452	U4,5,14,15,141,151,161,172,231
710-4132	U136,191
710-4193	U183,235,236
710-7400	U23,24,32,43,45,54,63,65,72,74,103,116,122, 124,132,145,154,156,165,173,175,195,206,213, 214,221,225,233
710-7404	U62,64,104,131,143,193,196,201,204,211
710-7408	U33,155,176
710-7410	U3,46,56,71,75,83,113,115,133,192,194,202,222
710-7414	U42,44,102,163,232
710-7420	U66,73,223
710-7430	U105,126
710-7437	U13,142
710 7440	U164,203
710-7442	U205
710-7474	U12,16,25,26,34,35,52,53,61,81,82,92,93,94, 95,121,125,134,135,144,146,166,174,182,184, 186,212,216,226,22,111
710-7490	U1,2,11,31,41,51,185
710-7493	U76,84,85,86,101,112,123,215

TABLE VI (8)

OPTION	CODE	OMIT
SELECTABLE	A	W3
PERMANENT STATUS	B	W11
REMOTE DENSITY	C	W4
ON LINE AT BOT	D	W2
REMOTE 7TK/9K	E	W1
EOT LATCH	F	W12

REFERENCE DESIGNATIONS

LAST USED	NOT USED	DELETED
C51		
CR1		
R23		
S1		
TP72	TP3,4,5,6,7,8,9,10,11,12,	
U236	U7,8,9,10,17,18,19 20, ,27,28,29,30,36,37, 38,39,40,47,48,49,50,55,57,58,59,60,67,68, 69,70,77,78,79,80,87,88,89,90,97,98,99,100, 106,107,108,109,110 14,117,118,119,120,127, 128,129,130,137,138,139,140,147,148,149,150, 152,153,157,158,159,160,167,168,169,170,177, 178,179,180,187,188,189,190,197,198,199,200, 207,208,209,210,217,218,219,220,227,228,229, 230, 234	
VR1		
W21		
Y1		

TABLE IV (3)

IC TYPE	+5V(L)	+15V	0V(L)	-15V	0V(I)	+5V(T)
LM318		7		4		
LM319		11		6		
120-0001					7	14
120-0003	14					
74LS00	14		7			
74LS04	14		7			
74LS08	14		7			
74LS10	14		7			
74LS14	14		7			
74LS20	14		7			
74LS30	14		7			
74LS37	14		7			
74LS40	14		7			
74LS42	16		8			
74LS74	14		7			
74LS90	5		10			
74LS93	5		10			
74LS132	14		7			
74LS193	16		8			
75452	8					

TABLE V (4)

U3 74LS10 — U6 — U21 LM319 — U23 74LS00 — U42 74LS14 — U45 74LS00

U13 74LS37 — U33 74LS08

U14 75452 — U63 74LS00 — U75 74LS10 — U113 74LS10 — U102 74LS14 — U103 74LS00 — U116 74LS00

U62 74LS04 — U66 74LS20

U122 74LS00 — U131 74LS04 — U154 74LS00 — U156 74LS00 — U165 74LS00 — U166 74LS74

U155 74LS08

U171 — U173 74LS00 — U175 74LS00 — U176 74LS08 — U181

U203 74LS40 — U204 74LS04 — U206 74LS00 — U211 74LS04 — U224 — U231 75452

U225 74LS00 — U232 74LS14

REVISIONS					
REV	DESCRIPTION	DATE	DR	CHK	APPR
A	ERN 12-KE PRODUCTION RELEASE	1-1-79	CADD		
A1	ECN C15020	6/4/80	J.F.		
B	ECN C15300	7/24/80	J.F.		
C	ECN C15459	9/18/80	J.F.		
D	ECN C15511A	10/30/80	R.F.		
E	ECN C15675	1/9/81	C.B.		
F	ECN C15831	4/2/81	C.B.		
G	ECN C15976	5/11/81	C.B.		
H	ECN C17013	12/17/81	C.B.		
J	ECN C17034	4/7/82	C.B.		
K	ECN C17124	7/6/82	C.B.		
L	ECN C17125	7/15/82	C.B.		
M	ECN C17143	7/30/82	C.B.		
N	ECN C15948	12/3/82	C.B.		

10. DELETED

(9) RESISTOR NETWORKS U171 AND U181 (120-0001) ARE SPECIFIED AT TOP ASSY FOR ALL VERSIONS EXCEPT -02 AND -12.

(8) FOR OPTION CODE SEE TABLE VI

7. SIGNALS ARE CROSS-REFERENCED BETWEEN SHEETS AND WITHIN A SHEET BY NUMBERS APPEARING UNDER THE ASSOCIATED LOGIC TERM MNEMONIC. THE FIRST NO. IS THE SHEET NO. AND THE SECOND NO. IS THE ZONE NO.

6. CAPACITOR VALUES ARE IN MICROFARADS, 20%, 100V.

5. RESISTOR VALUES ARE IN OHMS, 5%, 1/4W.

(4) FOR SPARE LOGIC ELEMENTS SEE TABLE V.

(3) FOR I.C. GENERIC TYPE NUMBER AND GROUND/VOLTAGE PIN NUMBERS SEE TABLE IV.

(2) FOR VALUE, PART NUMBER AND USAGE OF COMPONENTS AFFECTED BY VERSION NUMBER, SEE TABLE II.

(1) FOR PART NUMBER OF COMPONENTS NOT AFFECTED BY VERSION NUMBER, SEE TABLE I.

NOTES: UNLESS OTHERWISE SPECIFIED

ASSEMBLY NO. 106976
SPECIFICATION NO.
REFERENCE DRAWINGS

UNDER CONFIGURATION CONTROL

SIGNATURES	DATE
DR CADD	
CHK	
DES	
ENGR	
PROJ. ENGR	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES: XX ± ANGULAR ± XXX ± BREAK ALL SHARP CORNERS APPROX. .010

PERTEC A DIVISION OF PERTEC COMPUTER CORPORATION

TITLE SCHEMATIC, CONTROL M2

106876	T1000
NEXT ASSY	ART USED ON
APPLICATION	

FINISH: MATL:

SIZE E | FSCM NO. 32097 | DWG NO. 106875 | REV N | SCALE NONE | DO NOT SCALE DWG | SHEET 1 OF 12

MA-9235

Figure 19 Schematic, Control M2 (Sheet 1 of 12)

TABLE II [2]

MODEL	SPD (IPS)	OPTION CODE	ASSEMBLY 106876 VERSION NO.	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20	W21	U171, U181 [9]	C33,34,35,36,37
				503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	503-0138	691-6030	691-6030	691-6030	120-0001	135-1032
STD	125	A	-01	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	OMIT	USE	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	USE	OMIT	USE	OMIT	USE	OMIT	OMIT
STD	125	B,C	-02	USE	USE	USE	OMIT	OMIT	OMIT	OMIT	OMIT	USE	USE	OMIT	OMIT	USE	OMIT	OMIT	OMIT	USE	OMIT	USE	OMIT	USE	USE	USE
STD	125	A,C	-03	USE	USE	OMIT	OMIT	OMIT	OMIT	OMIT	OMIT	USE	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	USE	OMIT	USE	OMIT	USE	OMIT	OMIT
GCR	125	A	-11	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	USE	OMIT	USE	USE	OMIT	USE	USE	OMIT	USE	OMIT	OMIT	USE	OMIT	USE	OMIT	OMIT
GCR	125	B,C	-12	USE	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	USE	USE	OMIT	OMIT	USE	USE	USE	OMIT	OMIT	OMIT	OMIT	USE	OMIT	USE	USE
GCR	125	A,C	-13	USE	USE	OMIT	OMIT	OMIT	OMIT	OMIT	USE	OMIT	USE	USE	OMIT	USE	USE	OMIT	USE	OMIT	OMIT	USE	OMIT	USE	OMIT	OMIT
STD	75	A	-21	USE	USE	OMIT	USE	OMIT	OMIT	USE	USE	OMIT	USE	USE	OMIT	OMIT	OMIT	USE	USE	USE	USE	USE	OMIT	USE	OMIT	OMIT
STD	75	B,C	-22	USE	USE	USE	OMIT	OMIT	OMIT	USE	USE	OMIT	USE	OMIT	OMIT	OMIT	OMIT	USE	USE	USE	USE	USE	OMIT	USE	OMIT	OMIT
GCR	75	A	-31	USE	USE	OMIT	USE	USE	USE	USE	USE	USE	USE	USE	OMIT	USE	USE	USE	USE	USE	USE	USE	OMIT	USE	OMIT	OMIT
GCR	75	B,C	-32	USE	USE	USE	OMIT	USE	USE	USE	USE	USE	USE	OMIT	OMIT	USE	USE	USE	USE	USE	USE	USE	OMIT	USE	OMIT	OMIT

SIZE E | CODE IDENT NO. 32097 | DWG NO. 106875 | REV N
SCALE NONE | DO NOT SCALE DWG | SHEET 2 OF 12

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Figure 19 Schematic, Control M2 (Sheet 2 of 12)

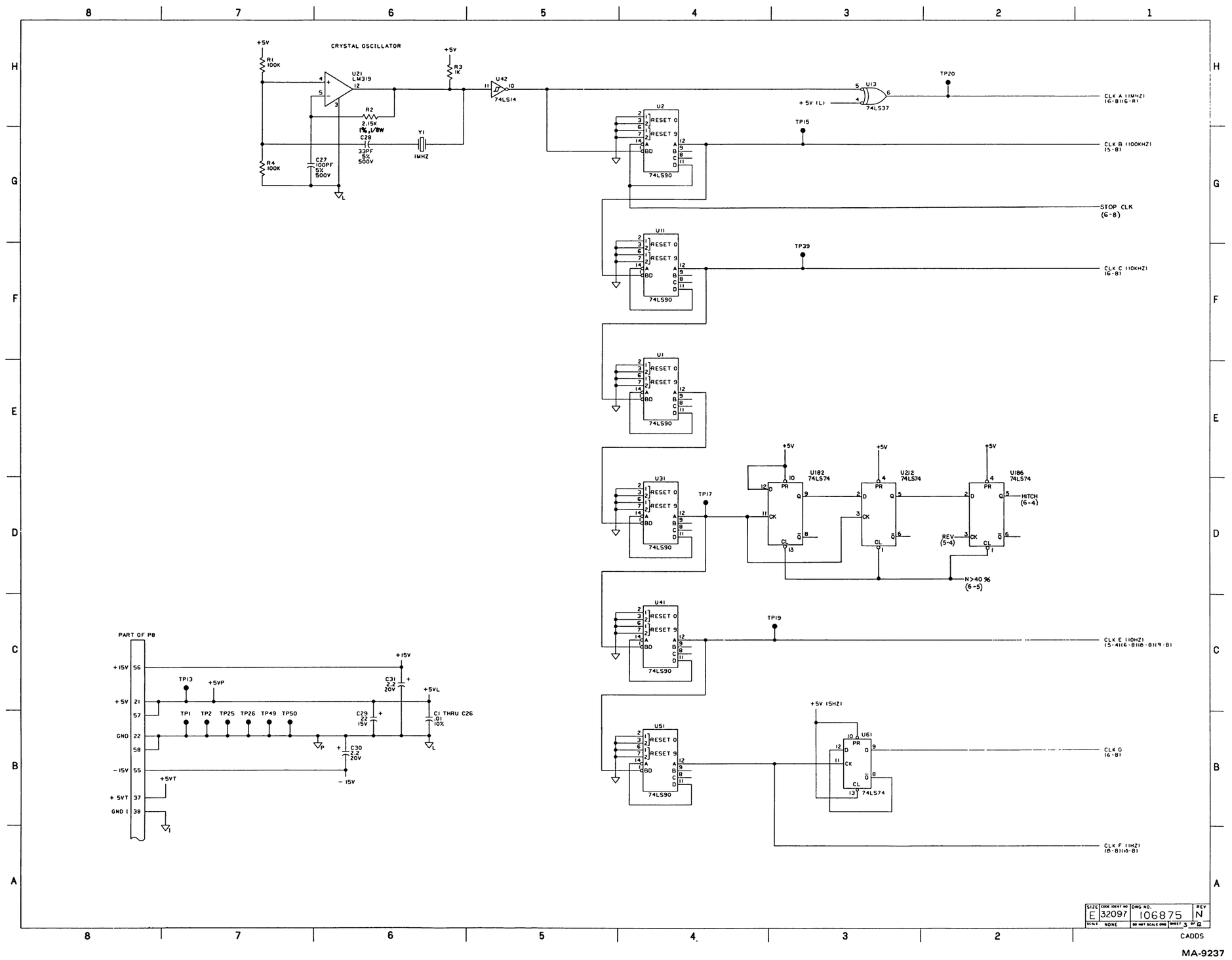

Figure 19 Schematic, Control M2 (Sheet 3 of 12)

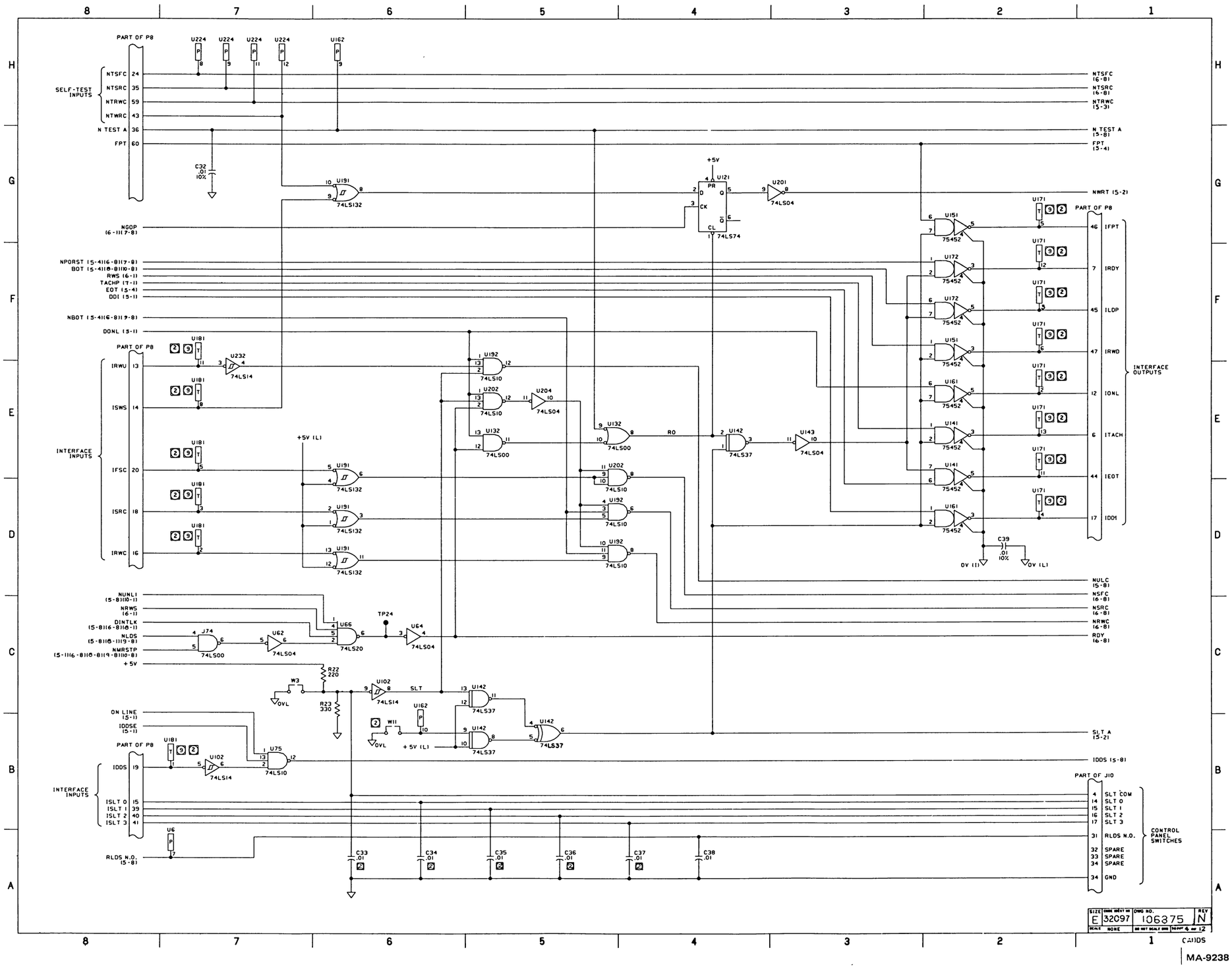

Figure 19 Schematic, Control M2 (Sheet 4 of 12)

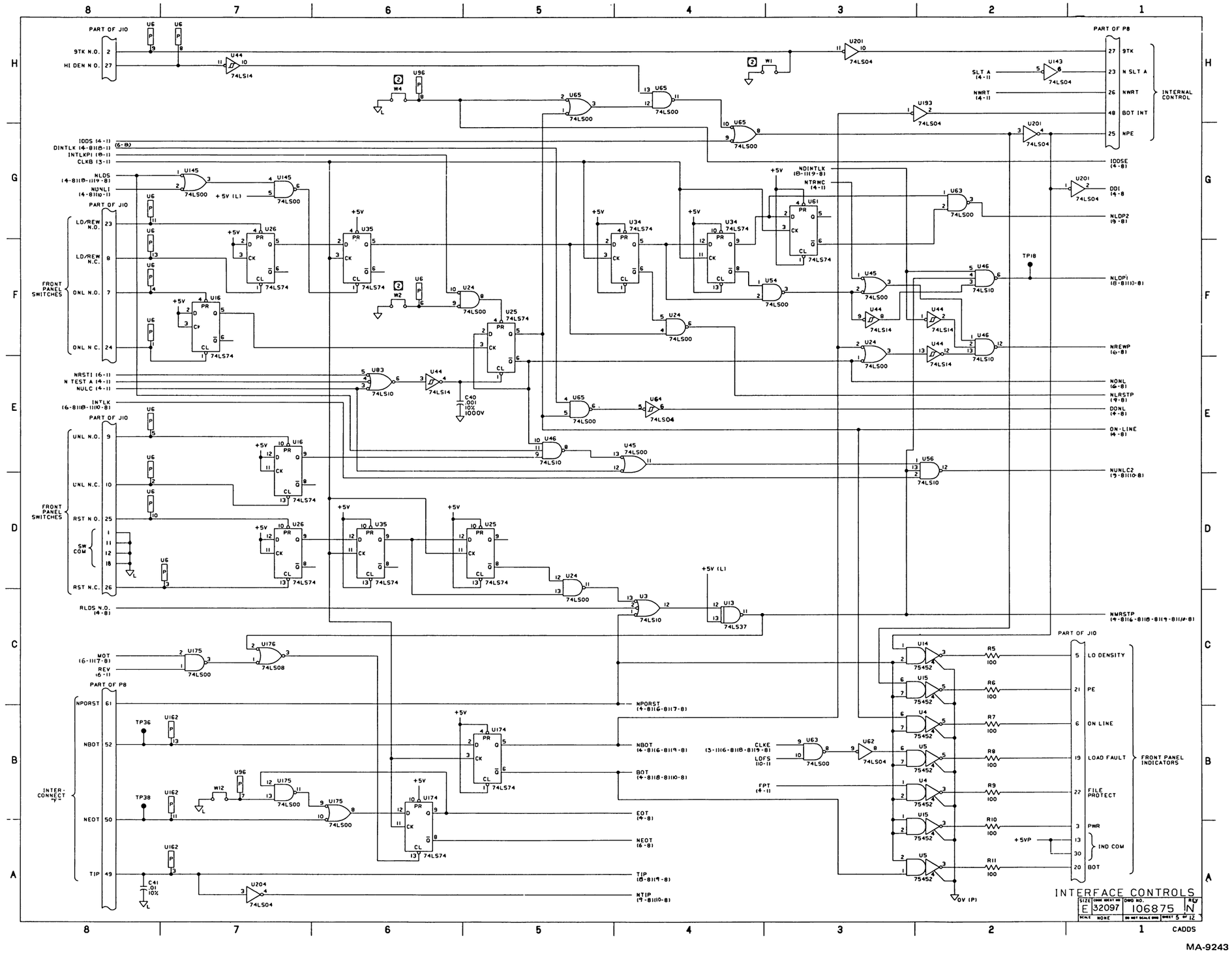

Figure 19 Schematic, Control M2 (Sheet 5 of 12)

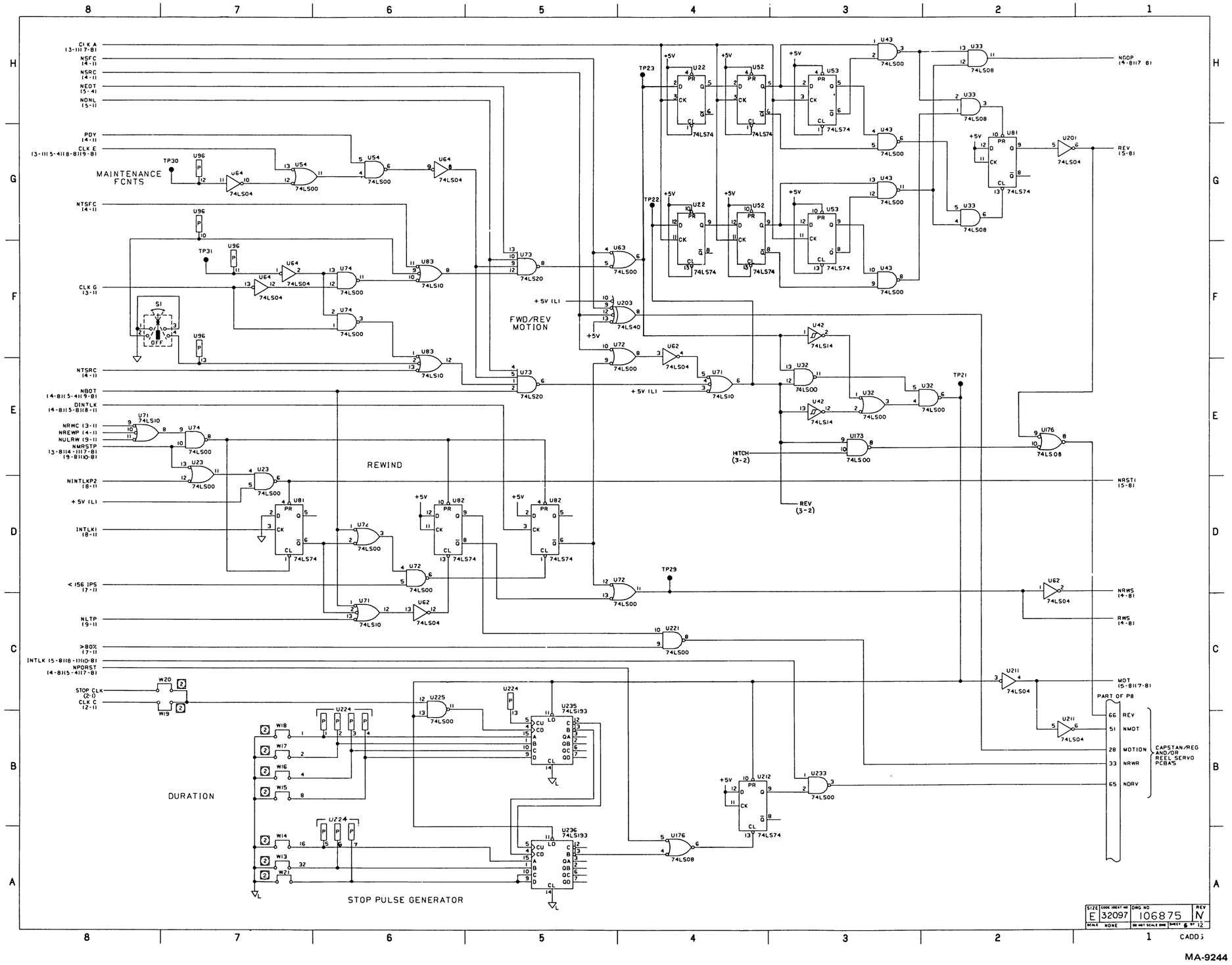

Figure 19 Schematic, Control M2 (Sheet 6 of 12)

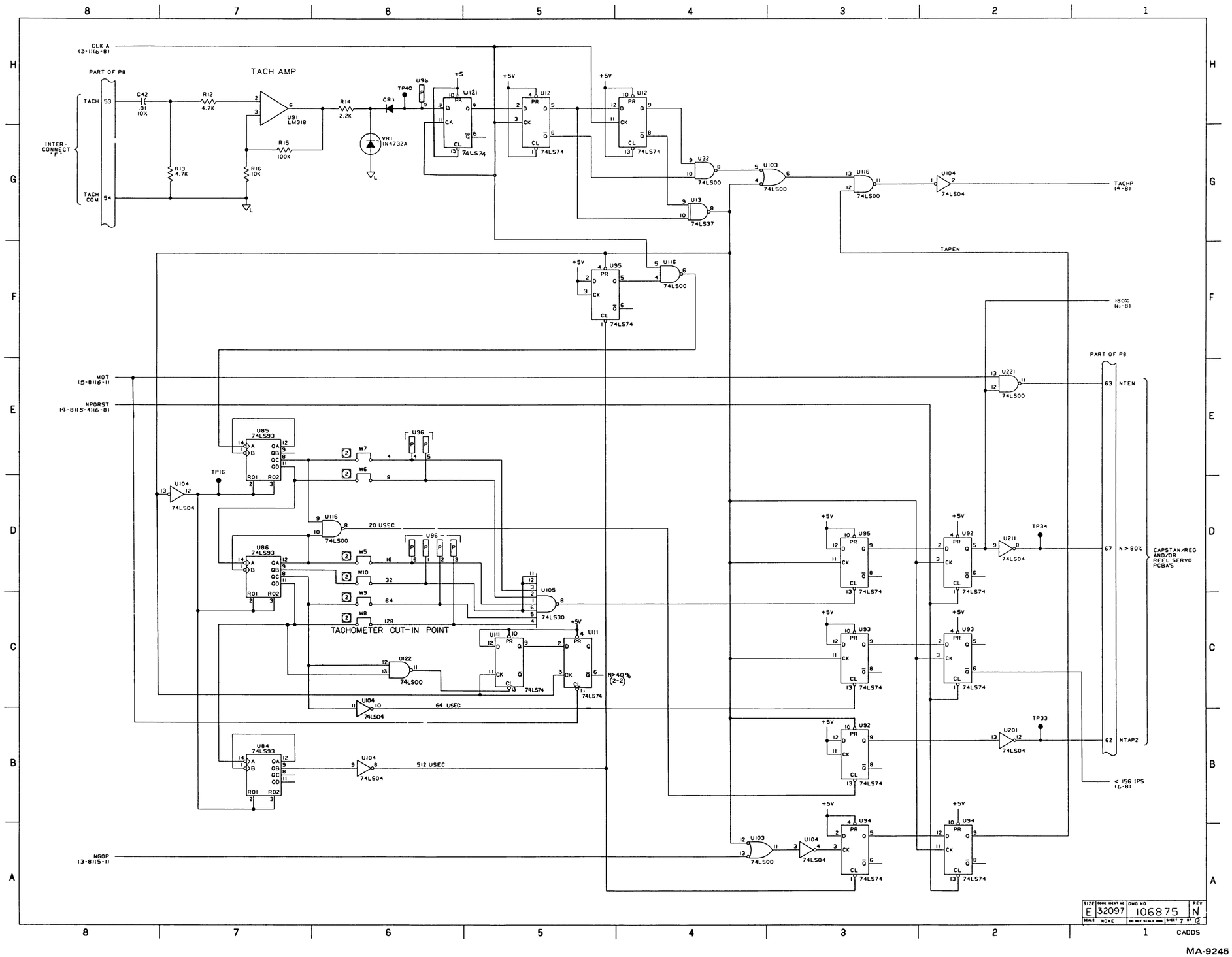

Figure 19 Schematic, Control M2 (Sheet 7 of 12)

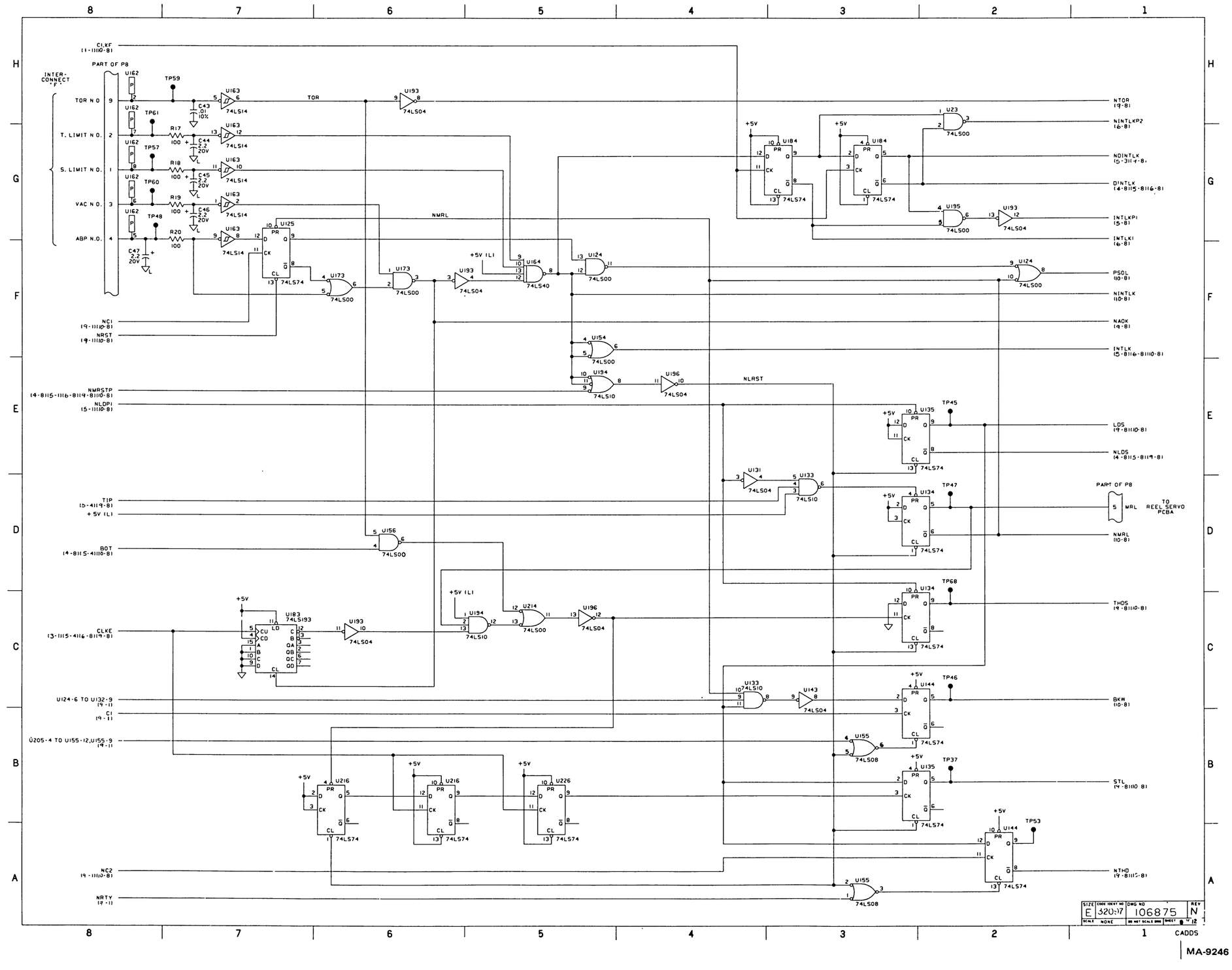

Figure 19 Schematic, Control M2 (Sheet 8 of 12)

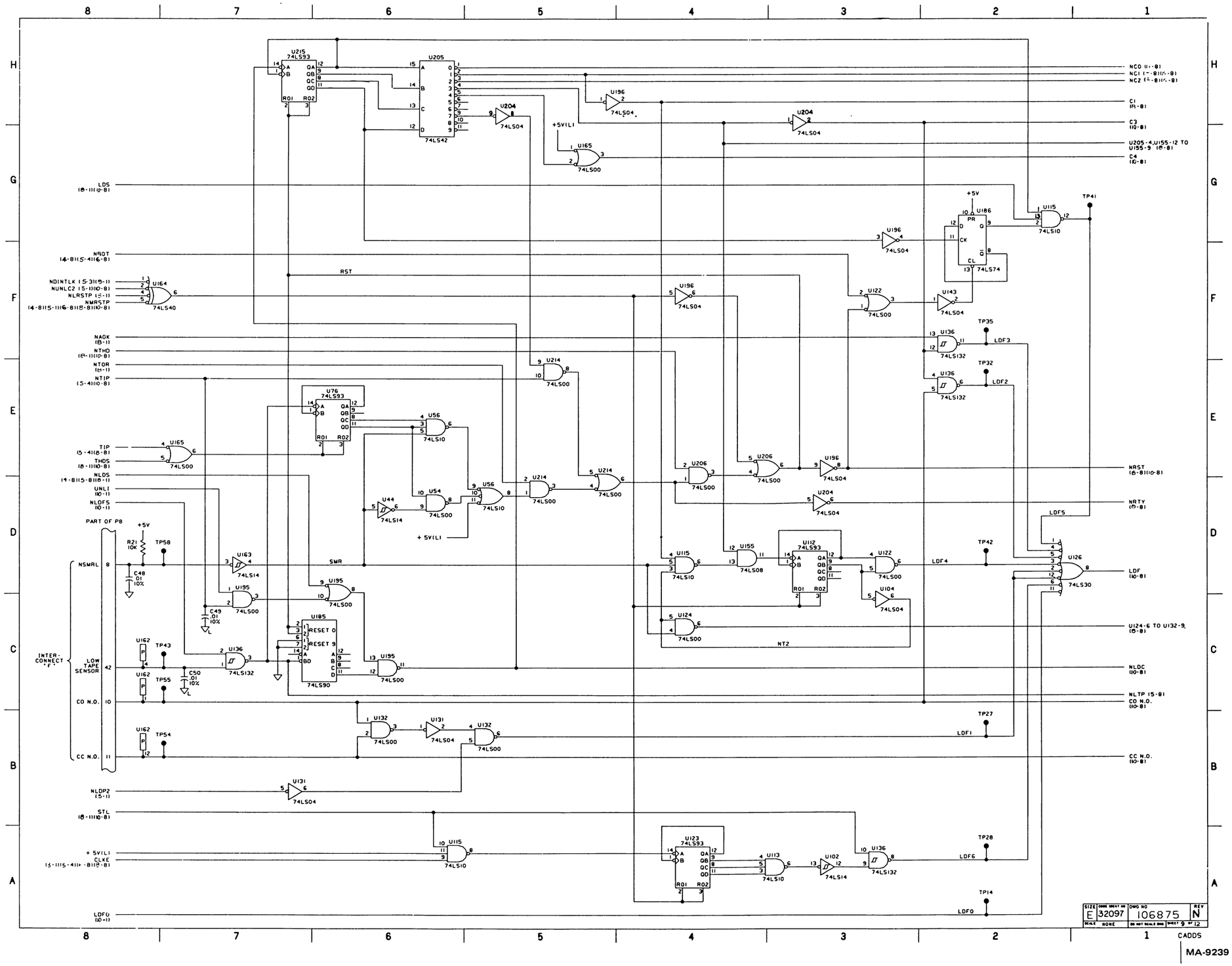

Figure 19 Schematic, Control M2 (Sheet 9 of 12)

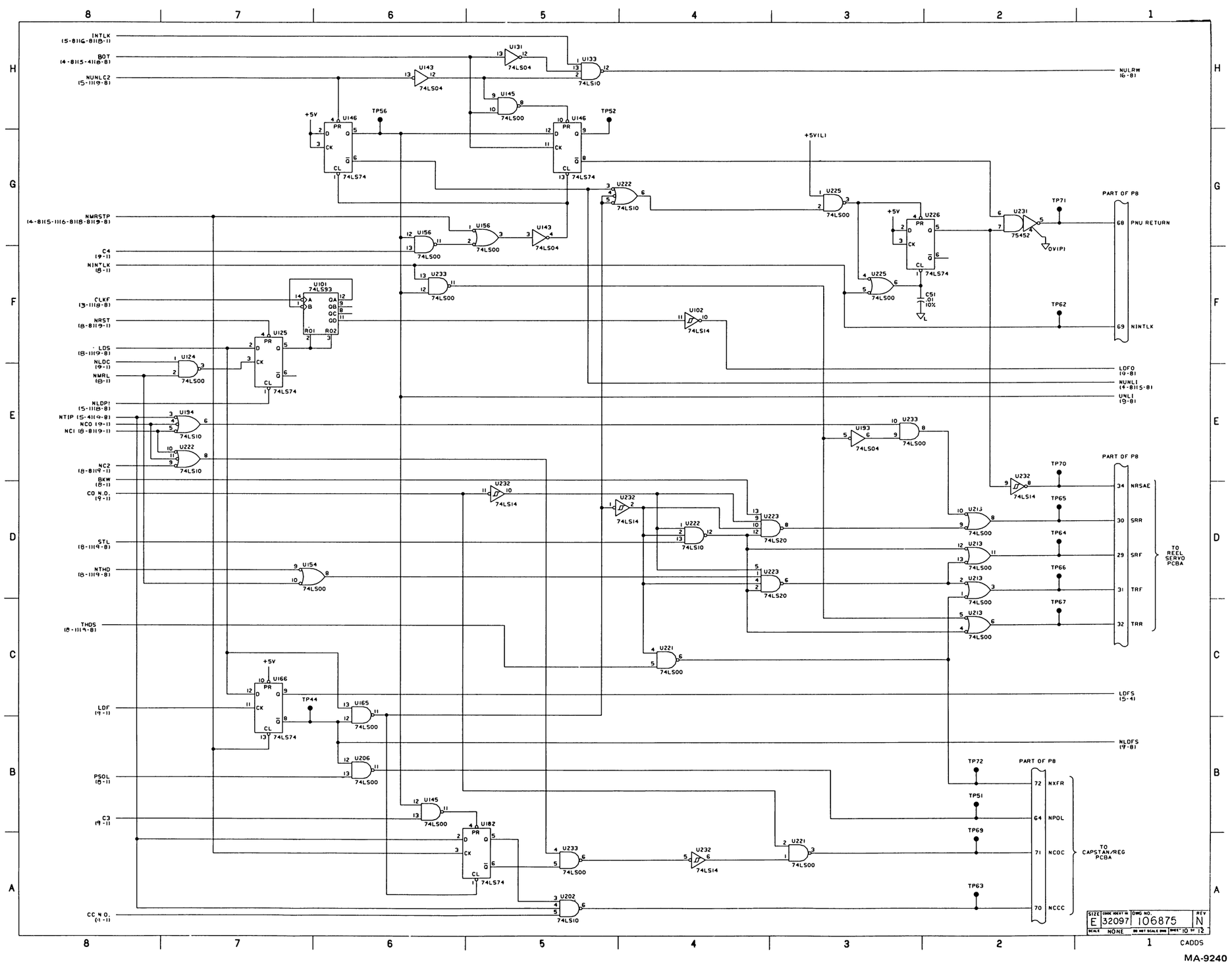

Figure 19 Schematic, Control M2 (Sheet 10 of 12)

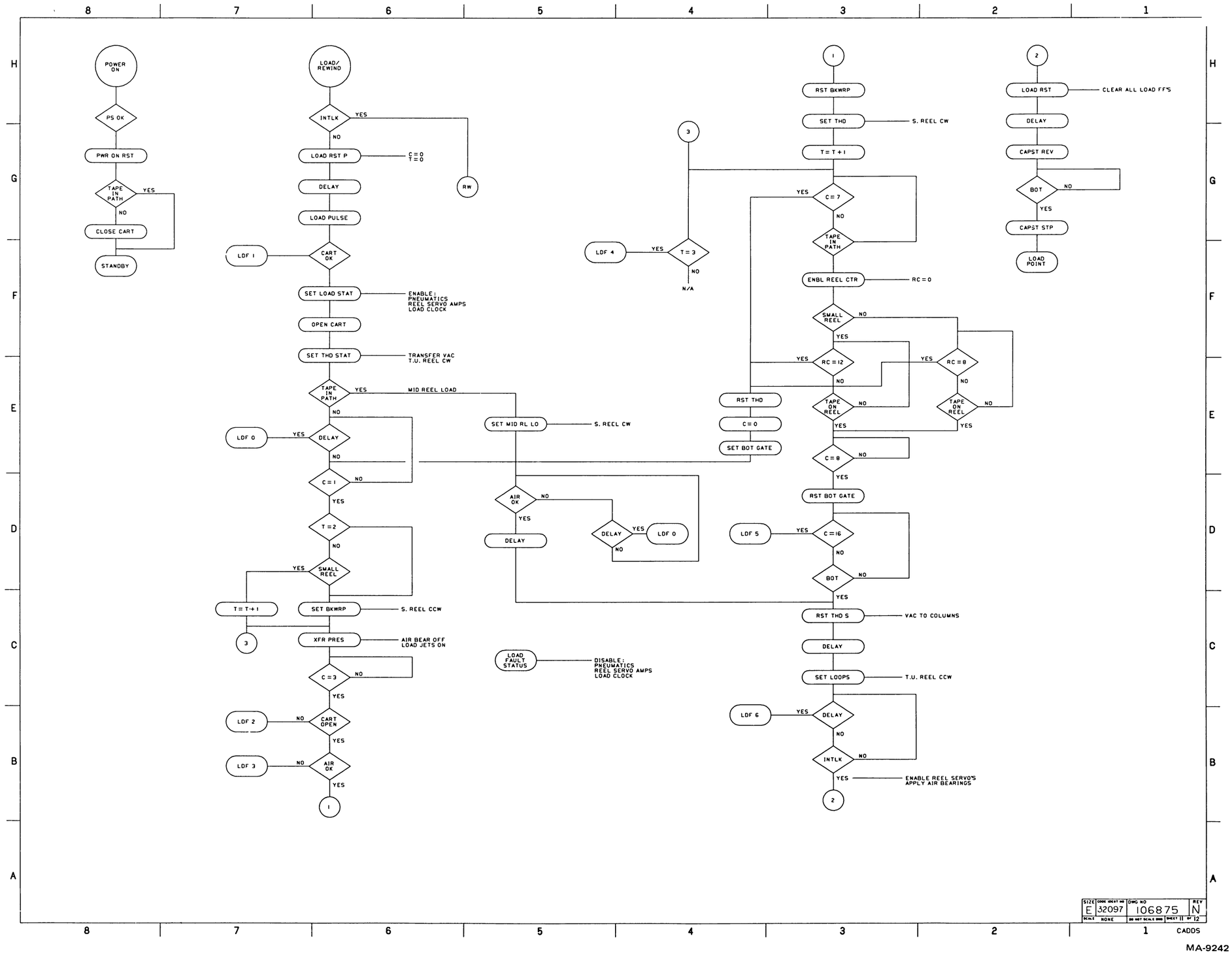

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Figure 19 Schematic, Control M2 (Sheet 11 of 12)

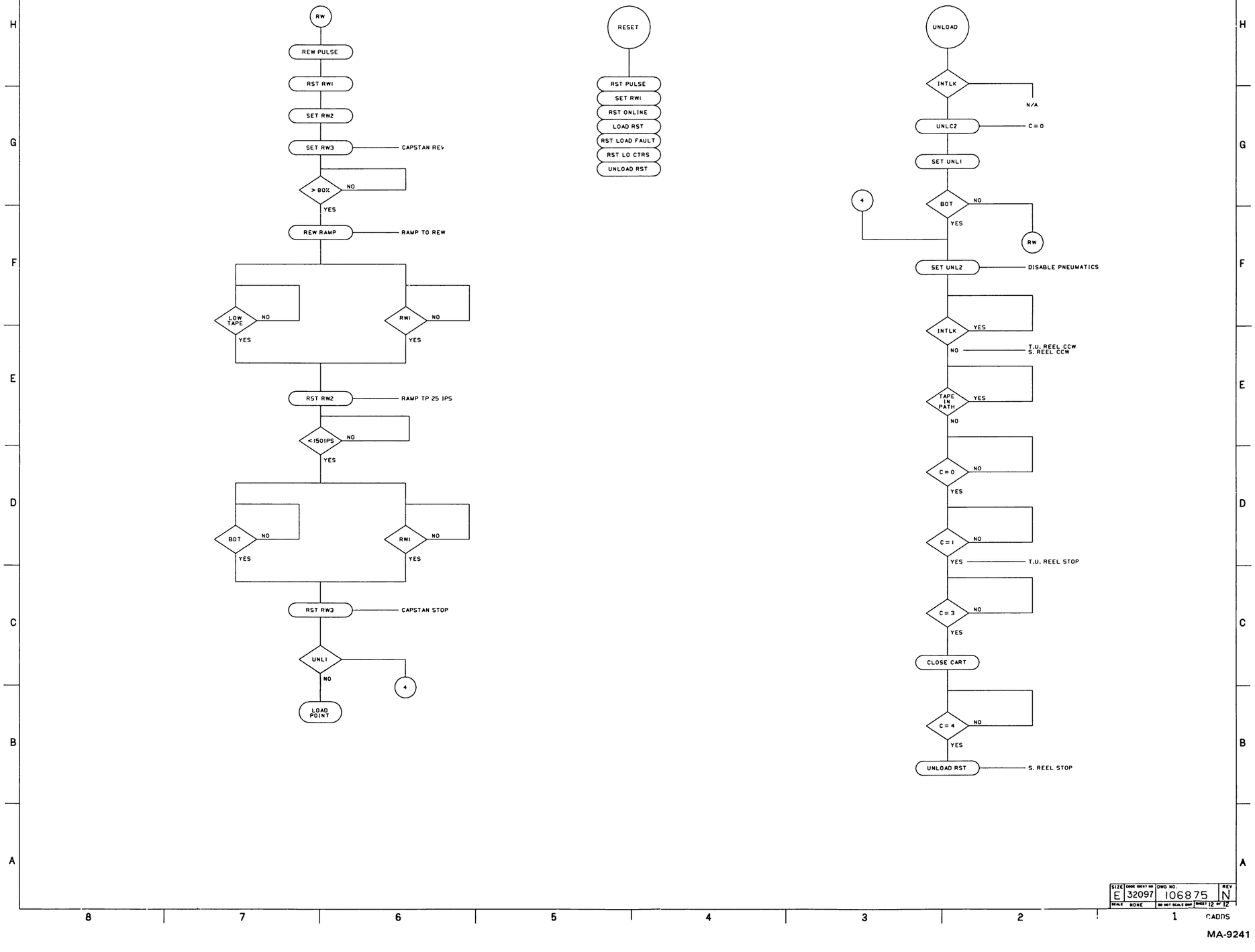
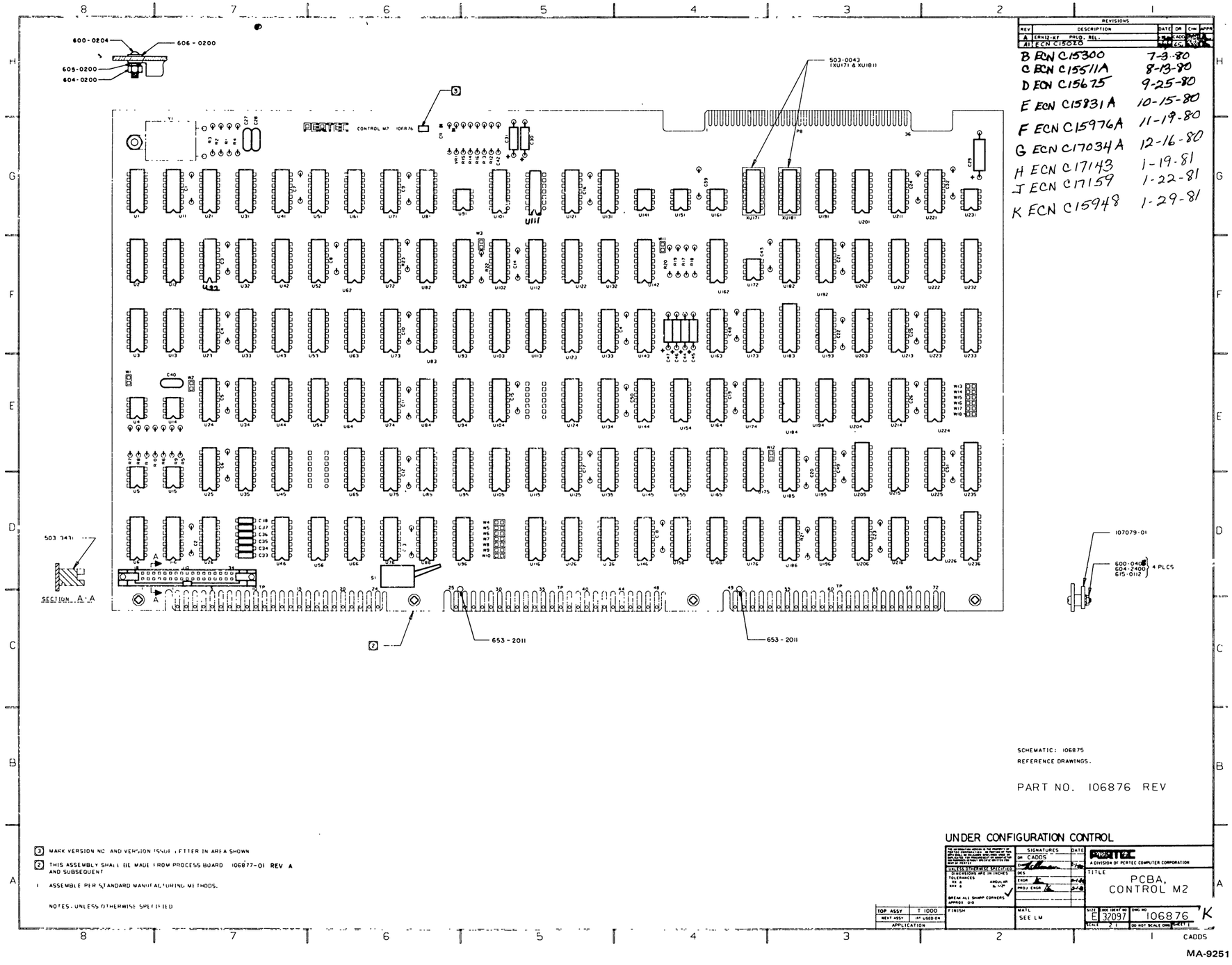


Figure 19 Schematic, Control M2 (Sheet 12 of 12)



REVISIONS				
REV	DESCRIPTION	DATE	DR	CHK APPR
A	ERN12-KF PROD. REL.		CADDS	
A1	ECN C15020		ECO	

B ECN C15300 7-3-80
C ECN C15511A 8-13-80
D ECN C15675 9-25-80
E ECN C15831A 10-15-80
F ECN C15976A 11-19-80
G ECN C17034A 12-16-80
H ECN C17143 1-19-81
J ECN C17159 1-22-81
K ECN C15948 1-29-81

Figure 20 PCBA, Control M2

TABLE I (1)

PART NO.	REFERENCE DESIGNATION
100-0475	R117, 120, 147, 150
100-1025	R5, 6, 16, 19, 20, 23, 24, 38, 39, 60, 61, 99, 101, 111, 112, 129, 131, 141, 142,
100-1035	R8, 9, 62, 63, 68
100-1045	R1, 2, 71, 159
100-1055	R69, 75
100-1815	R17
100-1835	R35
100-2245	R4
100-4355	R46,85
100-3305	R116,119,146, 149
100-4715	R15,113,115,143,145
100-4725	R7, 13, 14, 18, 27, 28, 29, 30, 31, 32, 33, 34, 36, 55, 57, 59, 94, 96, 98, 100, 130
100-4735	R3, 49,88,
100-4745	R12
403-4705	R104, 105, 121, 124, 134, 135, 151, 154
403-3305	R106, 108, 122, 125, 136, 138, 152, 155
101-4705	R127, 128, 157, 158
102-4715	R70
102-5625	R64, 67
103-1025	R37, 114, 118, 144, 148
107-4644	R92
107-1333	R80
107-1623	R41
107-1001	R102, 132
107-1000	R65, 66
107-1003	R40, 79, 54
107-2152	R51, 74, 90
107-2611	R72
107-4643	R11
107-5111	R77, 78
107-1780	R56, 58, 95, 97
107-7501	R73
107-3832	R50,89
107-7503	R10, 47, 48, 86, 87
107-6190	R103, 133
107-6312	R53,93
109-8215	R21, 22, 25, 26
110-0003	R110, 140
115-0004	R107, 109, 123, 126, 137, 139, 153, 156
121-1030	R 76,
121-5040	R52, 91
130-1015	C15, 23
131-1030	C21
131-2240	C1
135-1002	C14, 22
135-1031	C4, 5, 6, 7
135-2062	C37, 38, 49, 50
135-4748	C29 THRU 36, C41 THRU 48, 52
135-1541	C28,40
139-1020	C18, 19, 26, 27
139-2244	C2, 8, 9, 10, 11, 12, 13
139-2262	C3, 20
139-4755	C16, 17, 24, 25
142-1370	C39, 51
200-6336	Q24,26,42,44

TABLE I (1)

PART NO.	REFERENCE DESIGNATION
200-0041	Q27, 30, 45, 48
200-0042	Q17, 20, 35, 38
200-0001	Q18, 19, 21, 22, 28, 29, 31, 32, 36, 37, 39, 40, 46, 47, 49, 50
200-4037	Q3, 4, 5, 6, 7, 9, 16, 23, 25, 34, 41, 43
200-4123	Q1, 10, 11, 15, 33
200-4125	Q2, 12, 13
200-6058	Q8
204-0074	Q14
300-4446	CR1 THRU 10, 15, 16, 17, 18, 23, 24, 25, 26
300-8810	CR11, 12, 13, 14, 19, 20, 21, 22
330-0335	VR3
331-0605	VR2
331-1905	VR1
400-0307	U5, 8, 9, 14, 16
400-0311	U6, 15, 17
403-0002	U7, 18
514-0001	S1
515-0005	L1, 2, 3, 4
700-7416	U2, 11
710-7400	U4, 13
710-7410	U3, 10, 12
710-7474	U1

TABLE V (5)

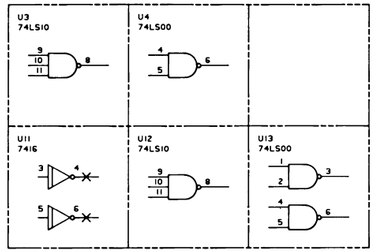


TABLE IV (4)

I.C. TYPE	+15V	+5V	GND	-15V
74LS00		14	7	
74LS10		14	7	
7416		14	7	
LM307	7			4
LM311	8			4

REFERENCE DESIGNATION		
LAST USED	NOT USED	DELETED
C52		
CR26		
J20		
L4		
Q50		
R159		R42 THRU 45, R1 THRU R4
S1		
TP72	(17)	
U18		
VR3		

REV	DESCRIPTION	DATE	DR	CHK	APPR
A	ERN 9-2K PRODUCTION RELEASE	9/4/79	EB	PE	[illegible]
B	ECN 10447	9/4/79	EB	[illegible]	[illegible]
C	ECN 10624A	9/4/79	EB	[illegible]	[illegible]
D	ECN 10646	9/4/79	EB	[illegible]	[illegible]
E	ECN 10777	9/4/79	EB	[illegible]	[illegible]
F	ECN 11067	9/4/79	EB	[illegible]	[illegible]
G	ECN 11096	9/4/79	EB	[illegible]	[illegible]
H	ECN 11115	9/4/79	EB	[illegible]	[illegible]
J	ECN 11523	9/4/79	EB	[illegible]	[illegible]
K	ECN 11925	9/4/79	EB	[illegible]	[illegible]
K1	ECN C12190	9/4/79	EB	[illegible]	[illegible]
L	ECN C12178	9/4/79	EB	[illegible]	[illegible]

M ECN C15194 6-12-80
N ECN C15442 9-10-80
P ECN C17001A 11-26-80

(17) TP1 THRU 3,5,7,9,11,13,15,17,19,20,25 THRU 48,54,63 ARE NOT USED.
16. (RESERVED)
15. (RESERVED)
14. (RESERVED)
(13) COMPONENT REQUIRES HEATSINK.
12. (RESERVED)
(11) SIGNALS ARE CROSS-REFERENCED BETWEEN SHEETS AND WITHIN A SHEET BY NUMBERS APPEARING UNDER THE ASSOCIATED LOGIC TERM MNEMONIC. THE FIRST NO. IS THE SHEET NO. AND THE SECOND NO. IS THE ZONE NO.
10. DIODES ARE 1N4446.
9. PNP TRANSISTORS ARE 2N4037.
8. NPN TRANSISTORS ARE 200-0001.
7. CAPACITOR VALUES ARE IN MICROFARADS.
6. RESISTOR VALUES ARE IN OHMS, 5%, 1/4W, ALL 1% ARE 1/8W.
(5) FOR SPARE LOGIC ELEMENTS SEE TABLE V.
(4) FOR GROUND AND VOLTAGE PIN NUMBERS SEE TABLE IV.
3. (RESERVED)
2. (RESERVED)
(1) FOR PART NUMBER OF COMPONENTS NOT AFFECTED BY VERSION NUMBER, SEE TABLE I.

NOTES: UNLESS OTHERWISE SPECIFIED
SPECIFICATION 106929
ASSEMBLY 106926
REFERENCE DRAWINGS

The information herein is the property of PERTEC CORPORATION. Any reproduction of this drawing or use of the design disclosed herein for manufacture or procurement of materials, parts or equipment without specific written permission of PERTEC is prohibited.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES
XX ± .1
XXX ± .05
ANGULAR ± 1/2°
MACH. FINISH 63 µ INCH EXCEPT AS NOTED

SIGNATURES | DATE
DR [illegible] 9/4/79
CHK [illegible] 9/4/79
ENG [illegible] 9/4/79
PROD ENGR

PERTEC
a division of Pertec Computer Corporation

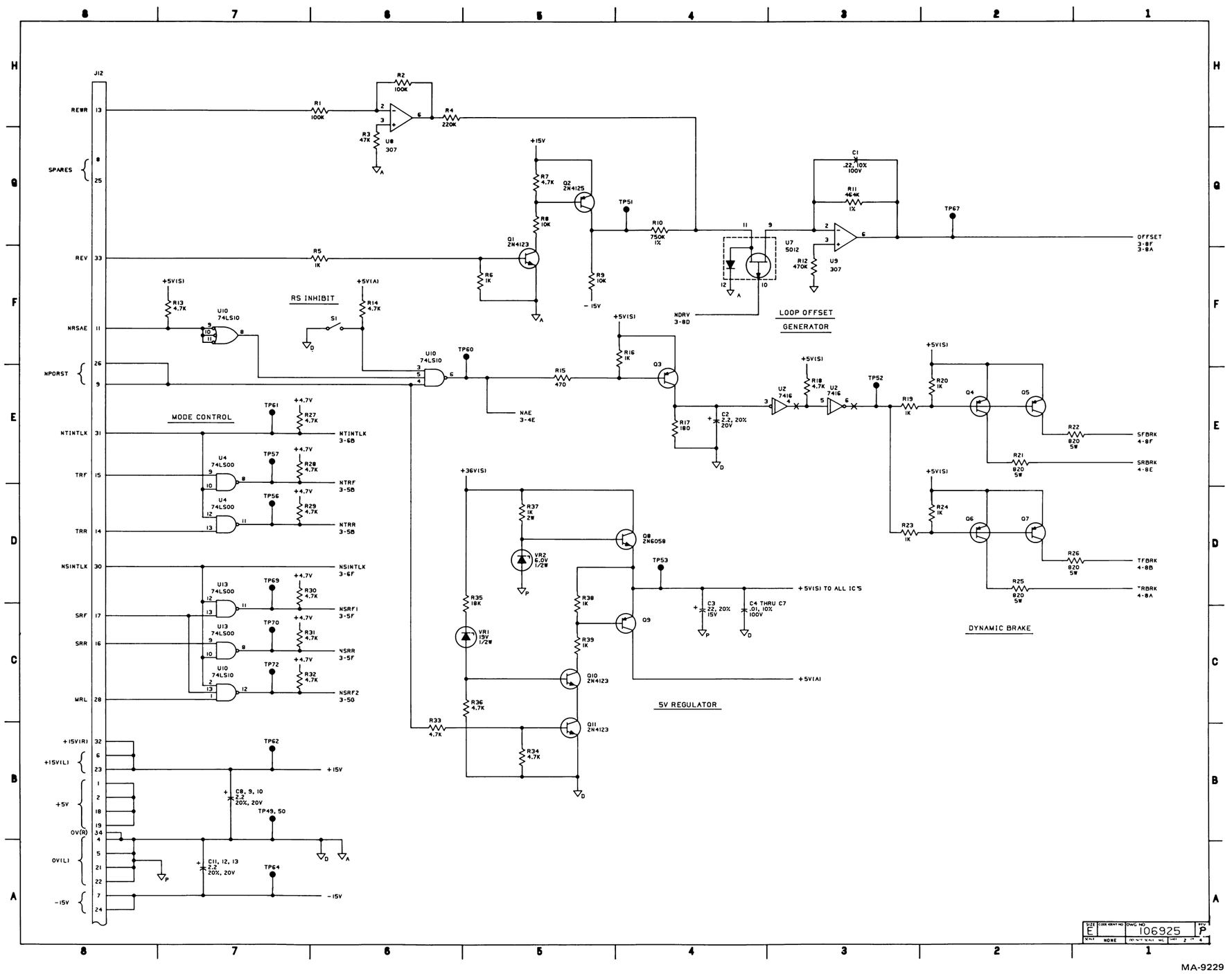
TITLE
SCHEMATIC, REEL SERVO

NEXT ASSY | 1ST USED ON
APPLICATION

SIZE E | CODE IDENT NO 32097 | DWG NO 106925 | REV P
SCALE NONE | DO NOT SCALE DWG | SHEET 1 OF 4

MA-9252

Figure 21 Schematic, Reel Servo (Sheet 1 of 4)



MA-9229

Figure 21 Schematic, Reel Servo (Sheet 2 of 4)

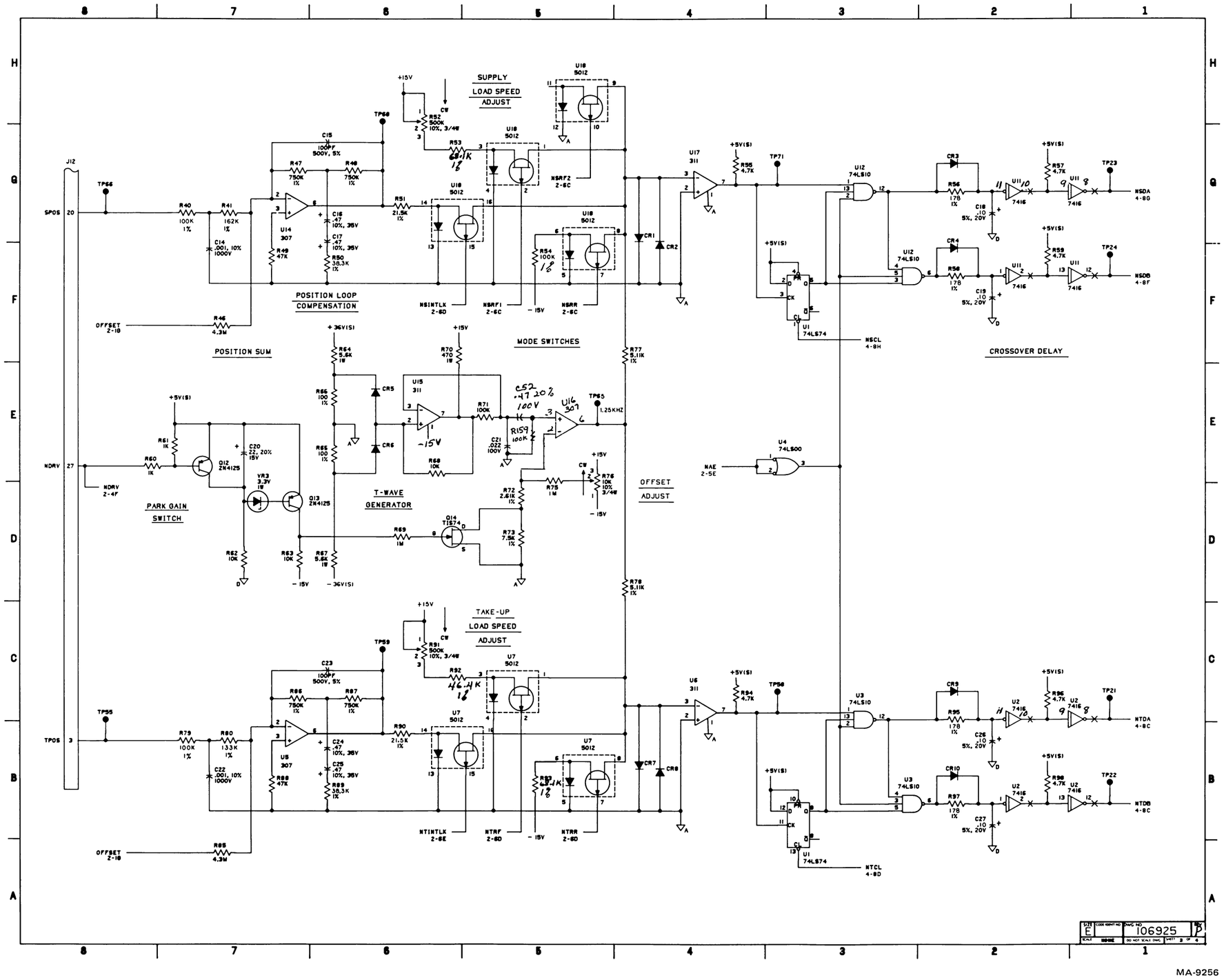
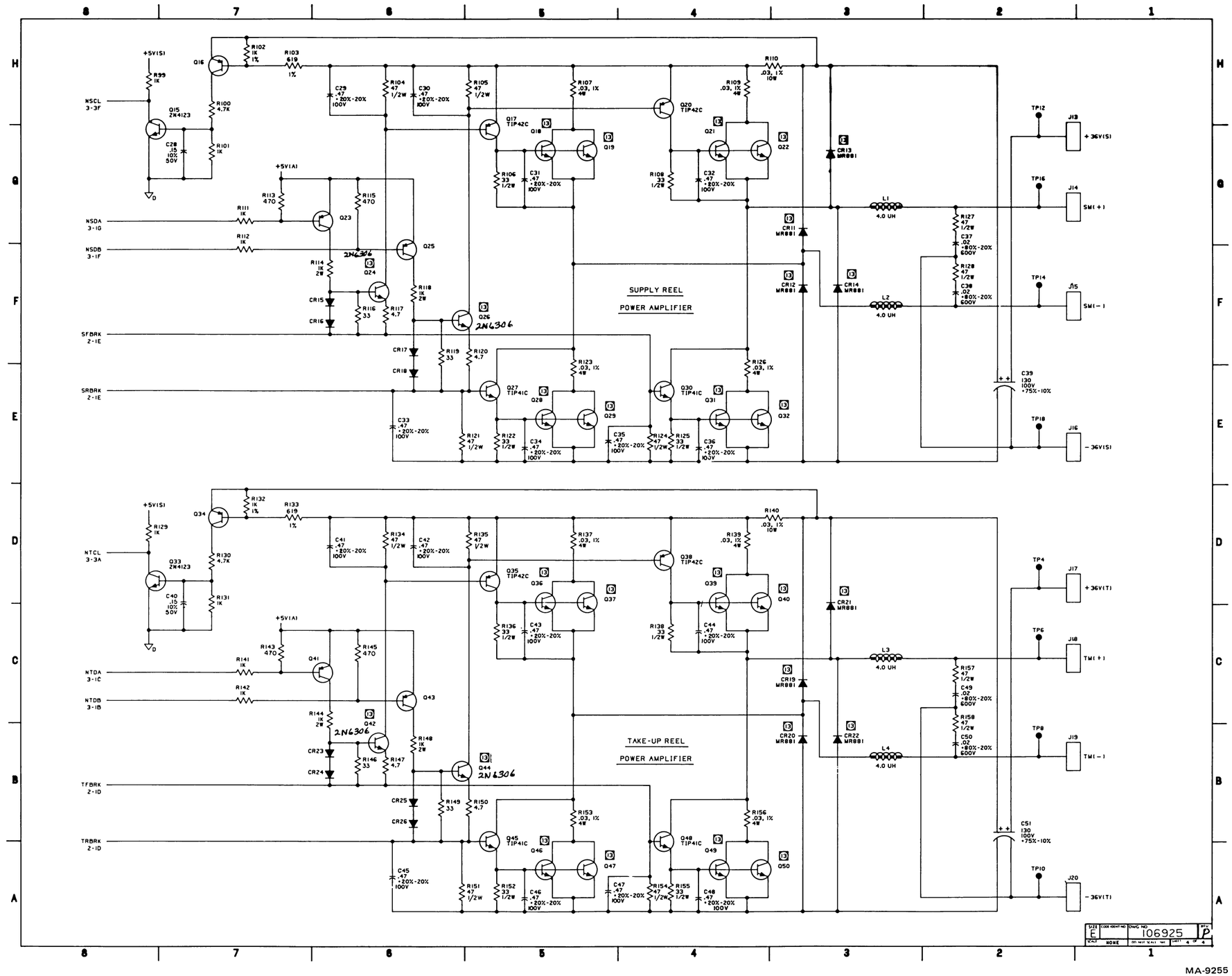


Figure 21 Schematic, Reel Servo (Sheet 3 of 4)



MA-9255

Figure 21 Schematic, Reel Servo (Sheet 4 of 4)

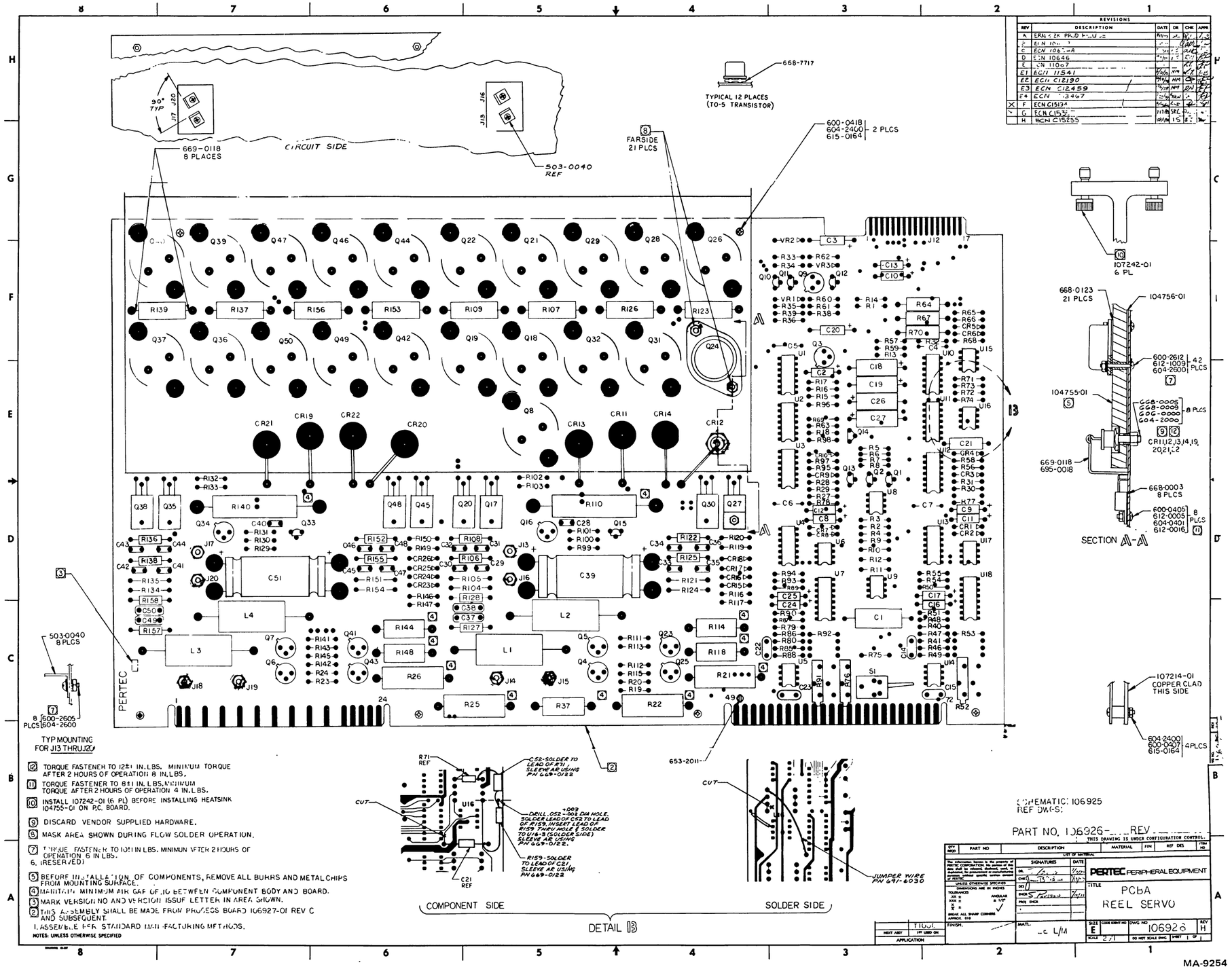


Figure 22 PCBA, Reel Servo

TABLE I (1)

PART NO.	REFERENCE DESIGNATION
103-1015	R24, 69, 131, 132, 137, 147, 154, 158 176
103-1025	R1, 3, 14, 18, 21, 22, 42, 44, 54, 63, 67, 72, 73, 79, 84, 85, 87 R88, 97, 98, 129, 139, 140, 111, 132, 144 R145, 150, 151, 152, 155, 165, 171, 172, 173
103-1035	R2, 4, 6, 8, 10, 11, 13 16, 17, 23, 45, 52, 55, R56, 57, 61, 63, 67, 71, 115, 121, 130, 149, 164 THRU 169
100-1045	R38, 50, 75
100-1055	R5, 15, 53, 86, 131, 134, 173
100-1065	R174
100-1835	R34, 35, 76, 114, 122
100-2225	R156, 99
100-3315	R108, 125, 126, 177
100-4705	R91
100-4715	R128, 139
100-4725	R7, 9, 12, 19, 74, 129, 136, 138, 178
100-5605	R95, 96, 104, 116, 117, 118, 119, 120, 124
100-2725	R46
131-1597	R175
101-1015	R146, 153, 157
403-1805	R30, 89
123-1015	R51
123-4715	R135, 148
107-1001	R27, 106
107-1002	R25, 37, 39, 40, 41, 49, 103
107-1208	R48
107 2151	R94
127-3832	R36,
107-6810	R64
107-6811	R26
107-5112	R72
108-4715	R23, 68
109-0900	R133
109-2715	R43
111-0001	R89
115-0328	R31, 32, 33, 81, 82, 83
118-0013	R127
121-3010	R59, 66, 78
121-1020	R47, 179
130-1015	C14, 29
130-2215	C18
130-3315	C4
131-3320	C2, 5, 8, 34
131-4720	C3, 6, 7
131-6830	C33

TABLE I CONT'D (1)

PART NO.	REFERENCE DESIGNATION
135-1781	C12, 13, 32
139-2244	C19, 25, 30, 31
139-2262	C9, 10, 17, 20, 21, 16
139-3352	C15
139-6845	C24, 28, 35, 36
142-1070	C26, C22, 38
142-5069	C1, 11
200-7041	Q19, 42, 43, 45, 47,
200-7042	Q6, 36
200-0004	Q26, 32, 35
200-4037	Q31,
200-4123	Q2, 4, 11, 17, 18, 20, 24, 30, 31, 37, 38, 51, 52, 55, 56
200-4125	Q1, 3, 13, 14, 28, 29, 33, 34, 50, 54, 58
200-4148	Q7, 8, 9, 21, 22, 23
200-5321	Q10
200-5323	Q16, 27, 44, 46
201-0126	SCR2, 3
201-3669	SCR1
204-0374	Q5, 12, 15, 25 53
300-4002	CR1, 4, 5, 8, 10, 11
300-4446	CR2, 3, 6, 7, 9, 12
331-0395	VR2
330-0475	VR4, 5, 9
330-0565	VR1
330-0515	VR7
330-1235	VR8
331-1905	VR3, 6
400-0305	U2
400-0307	U3, 8, 9, 10, 15
400-0325	U1
400-0318	U12
405-0702	U4, 13
710-7400	U5, 11, 14
710-7404	U7
710-7410	U6

(2) TABLE II

ASSEMBLY 104758 VERSION NO.	VERSION CHARACTERISTIC	Q39, 40, 48, 49 R140, 141, 142, 143, 159, 160 161 162 USAGE (3)	R112		R28, 29		R58, 65, 77		C37	L1	R90		R92		R105		W1
			VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	131-2060	515-1011	VALUE	PART NO	VALUE	PART NO.	VALUE	PART NO.	PART NO.
-01	BASIC	OMIT	0.3	118-7933	26.1K	197-2612	82.5	197-0825	OMIT	OMIT	0.1	110-0011	10	100-1005	39	101-3905	OMIT
-02	GCR	OMIT	0.15	118-7913	16.2K	197-1622	562	197-5629	USE	USE	0.1	110-0011	10	100-1005	39	101-3905	OMIT
-03	OEM STD	OMIT	0.3	118-0033	26.1K	107-2612	82.5	107-0825	OMIT	OMIT	0.03	110-0003	——	OMIT	——	OMIT	100-0005

(3) TABLE III

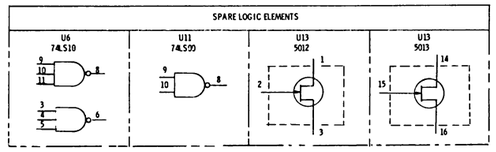
PART NO.	REFERENCE DESIGNATIONS
100-1015	R143, 162
100-1025	R140, 142, 159, 160
101-1015	R141, 161
200-0041	Q40, 49
200-4037	Q39
200-5323	Q48

TABLE IV (4)

GROUND & VOLTAGE PIN NO.				
I.C. TYPE	+15V	+5V	GND (R)	-15V
74LS00		14	7	
74LS04		14	7	
74LS10		14	7	
LM307	7			4
LM318	7			4

TABLE V (5)

SPARE LOGIC ELEMENTS



REFERENCE DESIGNATIONS

LAST USED	NOT USED	DELETED
C38		C27, C23
CR12		
P11		
Q56		
L1		
R179	R93, 113, 123	R107
SCR3		
TP21	(14)	
U15		
VR9		
W1		

(14) TP3, 4, 5 THRU 17, 14, 16, 17, 20, 21, 22, 23, 25 THRU 48, 53, 54, 60 THRU 64, 66, 67, 68, 69, 72

(13) COMPONENTS REQUIRE HEATSINK.

12. RESISTORS WITH 1% TOL. ARE 1/8W.

11 SIGNALS ARE CROSS-REF BETWEEN SHEETS AND WITHIN A SHEET BY NUMBERS APPEARING UNDER THE ASSOCIATED LOGIC TERM MNEMONIC. THE FIRST NO. IS THE SHEET NO. AND THE SECOND NO. IS THE ZONE NO.

10. DIODES ARE 1N4446.

9. PNP TRANSISTORS ARE 2N4125.

8. NPN TRANSISTORS ARE 2N4123.

7. CAPACITOR VALUES ARE IN MICROFARADS, 20%, 35V.

6. RESISTOR VALUES ARE IN OHMS, 5%, 1/4W.

(5) FOR SPARE LOGIC ELEMENTS, SEE TABLE V.

(4) FOR I.C. GENERIC TYPE NO. AND GROUND/VOLTAGE PIN NOS. SEE TABLE IV.

(3) FOR PART NUMBER, SEE TABLE III.

(2) FOR VALUE, PART NUMBER AND USAGE OF COMPONENTS AFFECTED BY VERSION NUMBER, SEE TABLE II.

(1) FOR PART NUMBER OF COMPONENTS NOT AFFECTED BY VERSION NUMBER, SEE TABLE I.

NOTES: UNLESS OTHERWISE SPECIFIED

THIS DRAWING IS UNDER CONFIGURATION CONTROL.

REVISIONS

REV	DESCRIPTION	DATE	DR	CHK	APPR
	PROTOTYPE NO. 1, 2, 3, 4	9/76	RDM		
A	ECN 9841	11/76	RDM		
B	ECN 9891	12/76	RDM		
C	ECN 9903	12/76	RDM	KS	
D	ECN 9918	1/77	RDM	KS	
	ECN 9-PW PROD RELEASE	1/77	RDM	KS	
E	ECN 10176	2/77	SC		
F	ECN 10473	4/77	LR		
G	ECN 10493	4/77	LR		
H	ECN 10815	5/77	RDM		
J	ECN 10842	5/77	LR		
K	ECN 11626B	7/77	LR		
L	ECN 11938A	7/77	LR		
L1	ECN C12190	9/77	MM		
M	ECN C12183A	9/77	MM		
N	ECN C12380	10/77	LJ		
P	ECN C12367	11/77	LR		
R	ECN C13427	11/77	LJ		
S	ECN C13818	12/77	LR		
T	ECN C13897	2/78	LR		
U	ECN C14044	3/78	SAM		
V	ECN C14222A	4/78	SAM		
W	ECN C14251	4/78	MA		
Y	ECN C14528A	6/78	MA		
X Z	ECN C14848A	11/78	MA		
X AA	ECN C14986	11/78	SAM		
X AB	ECN C15149	4/79	LR		
X AC	ECN C15329A	7/79	SAM		
AD	ECN C15330	9/79	CB		

The information herein is the property of PERTEC CORPORATION, the receipt of or possession hereof does not convey or imply any rights to reproduce, or to manufacture, or to have manufactured, except by written consent of PERTEC.	SIGNATURES	DATE	PERTEC PERIPHERAL EQUIPMENT DIVISION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES .XX ± .XXX ± ANGULAR ± 1/2° BREAK ALL SHARP CORNERS APPROX .010	DR. T. Hamm	8/78	
	CHK. [illegible]	9/78	TITLE SCHEMATIC CAPSTAN/REGULATOR
	ENGR. S. Peterson	9/78	
	PROJ. ENGR.		
FINISH	MATL	SIZE J	DWG NO. 104757 REV AD
104758 T1000 NEXT ASSY / APPLICATION		SCALE	DO NOT SCALE DWG. SHEET 1 OF 4

MAN. RED

MA-9249

Figure 23 Schematic, Capstan/Regulator (Sheet 1 of 4)

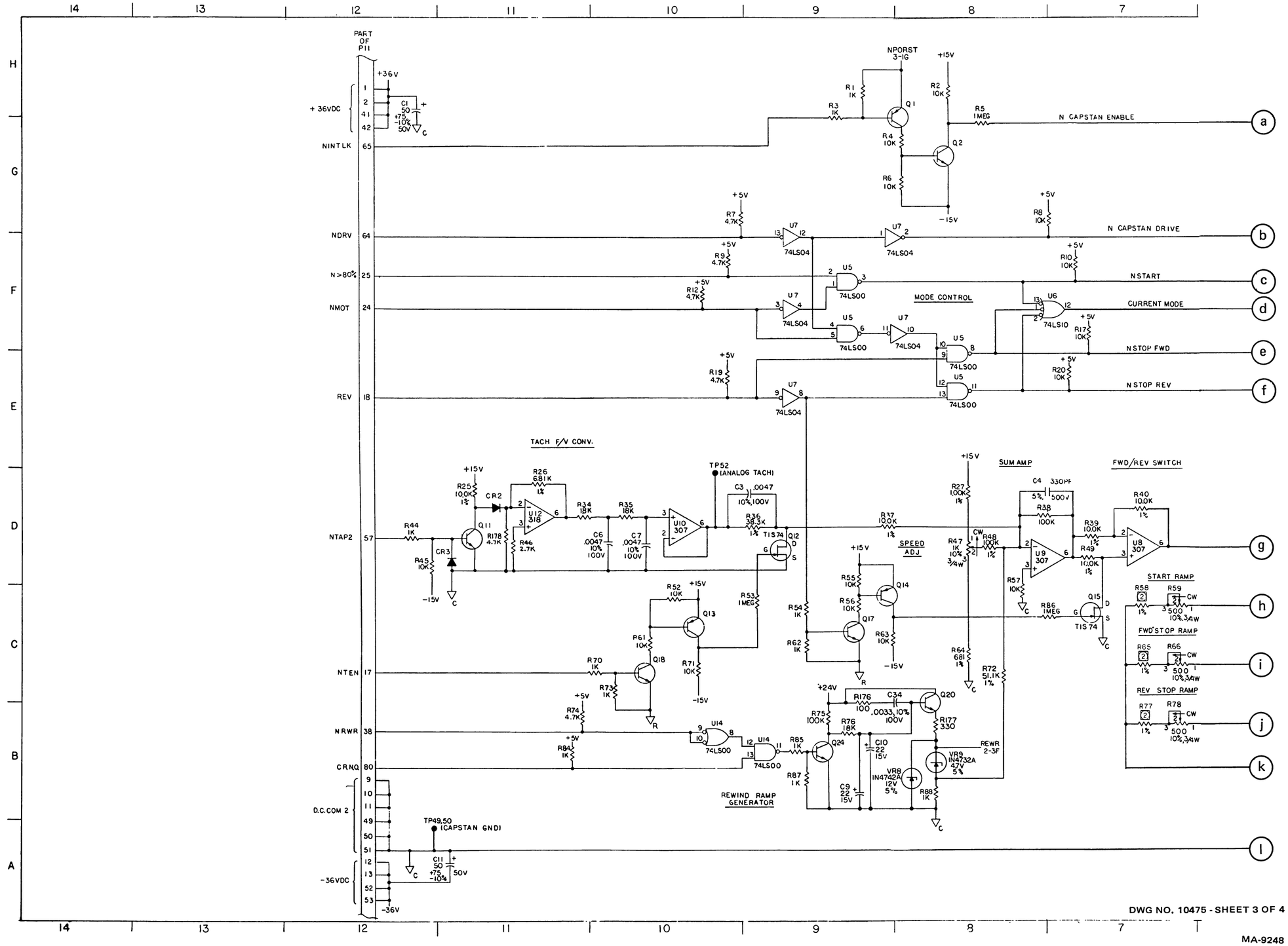


Figure 23 Schematic, Capstan/Regulator (Sheet 2 of 4)

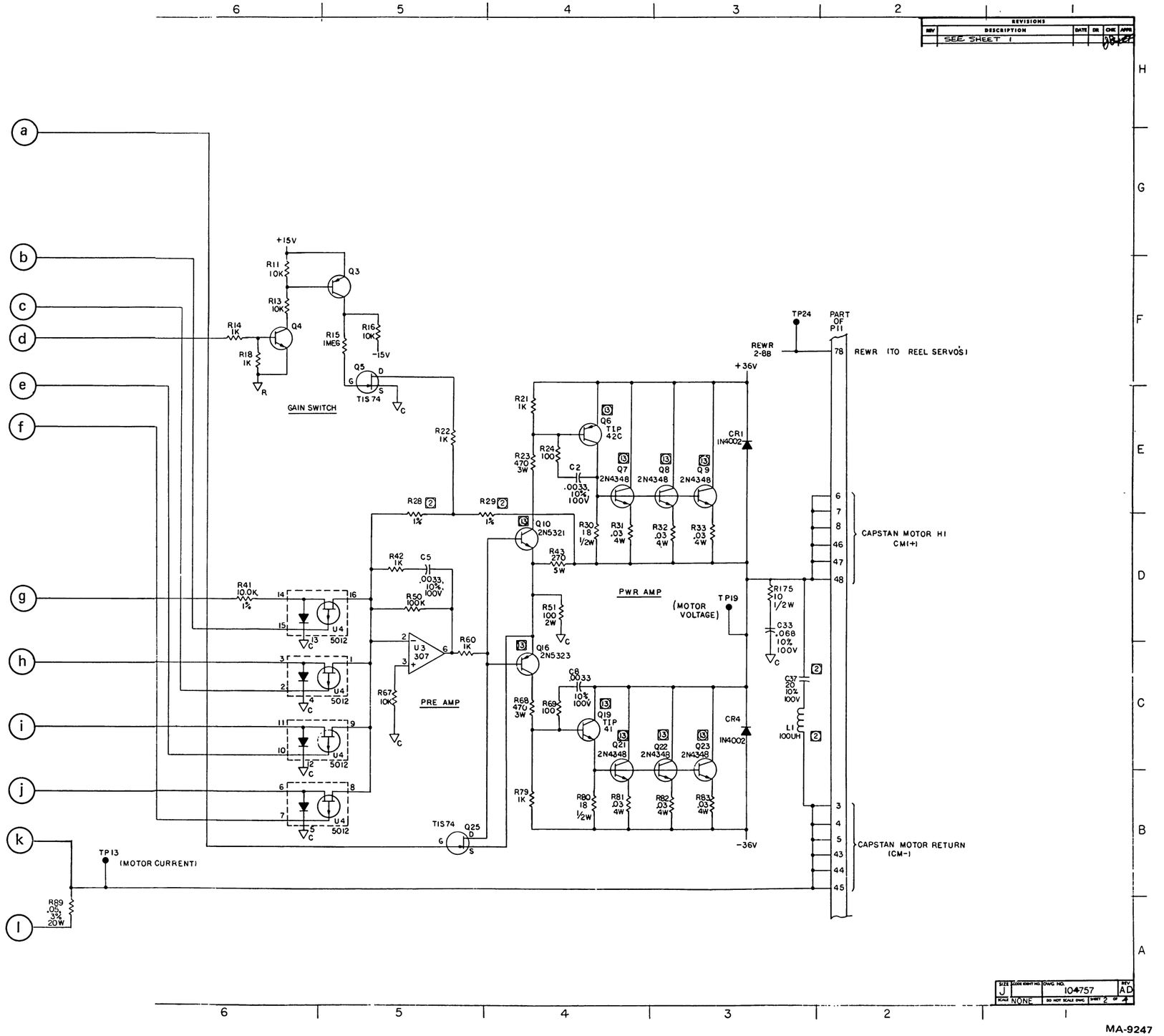
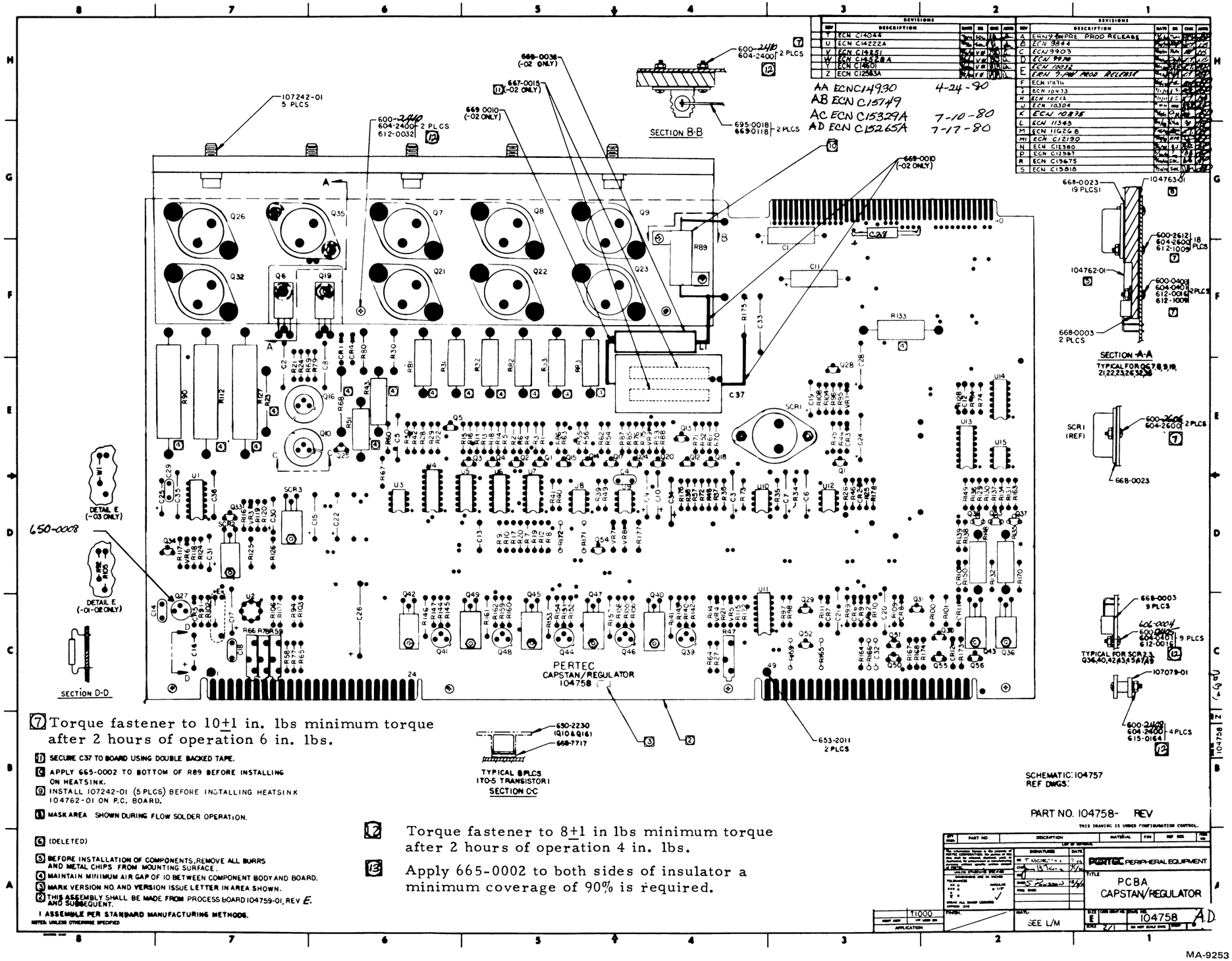


Figure 23 Schematic, Capstan/Regulator (Sheet 3 of 4)

Figure 23 Schematic, Capstan/Regulator (Sheet 4 of 4)


REVISIONS
AA ECNC14930 4-24-80
AB ECN C15749
AC ECN C15329A 7-10-80
AD ECN C15265A 7-17-80
SECTION B-B
SECTION A-A
TYPICAL FOR Q6,7,8,9,19, 21,22,23,26,32,36
SECTION D-D
DETAIL E (-01-02 ONLY)
SECTION C-C
TYPICAL 8PLCS (TO-5 TRANSISTOR)
PERTEC CAPSTAN/REGULATOR 104758
SCHEMATIC: 104757
REF DWGS:
PART NO. 104758- REV
THIS DRAWING IS UNDER CONFIGURATION CONTROL.
PERTEC PERIPHERAL EQUIPMENT
PCBA CAPSTAN/REGULATOR
104758 AD
SEE L/M
7 Torque fastener to 10±1 in. lbs minimum torque after 2 hours of operation 6 in. lbs.
10 SECURE C37 TO BOARD USING DOUBLE BACKED TAPE.
C APPLY 665-0002 TO BOTTOM OF R89 BEFORE INSTALLING ON HEATSINK.
9 INSTALL 107242-01 (5 PLCS) BEFORE INSTALLING HEATSINK 104762-01 ON P.C. BOARD.
11 MASK AREA SHOWN DURING FLOW SOLDER OPERATION.
6 (DELETED)
5 BEFORE INSTALLATION OF COMPONENTS, REMOVE ALL BURRS AND METAL CHIPS FROM MOUNTING SURFACE.
4 MAINTAIN MINIMUM AIR GAP OF 10 BETWEEN COMPONENT BODY AND BOARD.
3 MARK VERSION NO. AND VERSION ISSUE LETTER IN AREA SHOWN.
2 THIS ASSEMBLY SHALL BE MADE FROM PROCESS BOARD 104759-01, REV E. AND SUBSEQUENT.
1 ASSEMBLE PER STANDARD MANUFACTURING METHODS.
12 Torque fastener to 8±1 in lbs minimum torque after 2 hours of operation 4 in. lbs.
13 Apply 665-0002 to both sides of insulator a minimum coverage of 90% is required.

MA-9253

Figure 24 PCBA, Capstan/Regulator

TABLE I (1)

PART NO.	REFERENCE DESIGNATION
100-1025	R2, 4, 5, 11, 18, 22, 23, 27, 29, 30, 31, 33 THRU 38, 111, 112, 114, 211, 212, 214, 311, 312, 314, 411, 412, 414, 511, 512, 514, 611, 612, 614, 711, 712, 714, 811, 812, 814, 911, 912, 914
100-1035	R13,
100-1045	R9
100-1225	R15,
100-1515	R24, 25, 26, 32
100-1525	R102, 202, 302, 402, 502, 602, 702, 802, 902
100-1535	R8
100-1815	R104, 116, 204, 216, 304, 316, 404, 416, 504, 516, 604, 616, 704, 716, 804, 816, 904, 916
100-1825	R20
100-2225	R7, 12
100-2245	R10
100-2735	R103, 203, 303, 403, 503, 603, 703, 803, 903
100-3315	R19
100-3325	R108, 208, 308, 408, 508, 608, 708, 808, 908
100-3935	R3
100-4725	R6, 28
101-1015	R17, , 107, 109, 207, 209, 307, 309, 407, 409, 507, 509, 607, 609, 707, 709, 807, 809, 907, 909
101-1025	R1, 21
101-1215	R39, 40, 41, 42
101-8205	R16
101-7505	R105, 205, 305, 405, 505, 605, 705, 805, 905
107-1212	R110, 210, 310, 410, 510, 610, 710, 810, 910
107-1621	R106, 206, 306, 406, 506, 606, 706, 806, 906
107-3161	R113, 213, 313, 413, 513, 613, 713, 813, 913
107-8251	R115, 215, 315, 415, 515, 715, 715, 815, 915
(14) 120-0001	U22, 25
121-1030	R101, 201, 301, 401, 501, 601, 701, 801, 901
130-4705	C3, 20
135-4742	C5
139-2244	C1, 2, 4, 7 THRU 19, 21, 22
200-4037	Q101, 201, 301, 401, 501, 601, 701, 801, 901, 102, 202, 302, 402, 502, 602, 702, 802, 902, 103, 203, 303, 403, 503, 603, 703, 803, 903
200-4123	Q2, 104, 105, 204, 205, 304, 305, 404, 405, 504, 505, 604, 605, 704, 705, 804, 805, 904, 905
200-4125	Q1

TABLE I (1) (CONT'D)

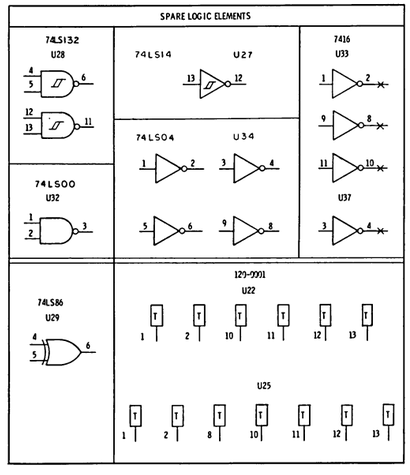
PART NO.	REFERENCE DESIGNATION
200-5323	Q3, 4
300-4446	CR1
400-2741	U38
700-7416	U33, 37
710-4132	U21, 24, 28
710-4221	U2, 5, 7, 10, 12, 15, 17, 20, 23, 35
710-7400	U31, 32
710-7404	U34
710-7414	U27
710-7438	U36
710-7474	U4, 9, 14, 19, 26
710-7476	U1, 6, 11, 16, 30
710-7486	U3, 8, 13, 18, 29

TABLE II (2)

ASSEMBLY 104811 VERSION NO.	VERSION CHARACTERISTIC	C6		C101, 201, 301, 421, C501, 601, 701, 801, C901		C102, 202, 302, 402, C502, 602, 702, 802, C902	
		VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.
-01	75 IPS	.0022	131-2220	750 PF	130-7515	56 PF	130-5605
-02	100 IPS	.0022	131-2220	750 PF	130-7515	43 PF	130-4305
-03	112.5/125 IPS	.0015	131-1520	560 PF	130-5615	33 PF	130-3305

TABLE III (3)

SPARE LOGIC ELEMENTS



MA-5826

Figure 25 Schematic, Write (Sheet 1 of 4)

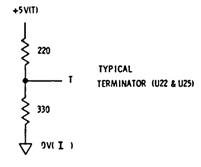
REVISIONS					
REV	DESCRIPTION	DATE	DR	CHK	APPR
A	ERN 8-YD PRE-PRODUCTION REL	8-8-78	RJ	[illegible]	[illegible]
A1	ECN 9731	9/6/79	TBH	[illegible]	[illegible]
	ERN 9-UU PROD. RELEASE	9-14-79	TBH	[illegible]	[illegible]
B	ECN 10164	11-16-79	SW	[illegible]	[illegible]
C	ECN 10215	12-12-79	RJ	[illegible]	[illegible]
D	ECN 10479	3-11-80	RJ	[illegible]	[illegible]
E	ECN 10864	9-2-80	RJ	[illegible]	[illegible]
F	ECN 11379	7-24-81	SW	RJ	[illegible]
G	ECN 11486	10-30-81	RJ	RJ	[illegible]
H	ECN 11841	2-19-82	MH	KY	[illegible]
J	ECN C13088				

TABLE IV (4)

I.C. TYPE	+5V (L) PIN NO.	GND PIN NO.
7416	14	7
74LS09	14	7
74LS04	14	7
74LS38	14	7
74LS74	14	7
74LS76	5	13
74LS86	14	7
74221	16	8
74LS14	14	7
74LS132	14	7

REFERENCE DESIGNATION

LAST USED		NOT USED		DELETED	
	(12)		(12)		(12)
C22	C2	—	—		
CR1	—	—	—		
Q4	Q5	—	—		
R42	R16	—	—	R14	
TP48	—	TP3 THRU 24, 43, 44, 46	—		
U38	—	—	—		



(14) RESISTOR NETWORK U22 & U25 ARE SPECIFIED AT TOP ASSY
13. ALL UNMARKED GNDS ARE 0V (L).
(12) PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH CIRCUIT NUMBER. (R1 IN CIRCUIT 200 IS R201).
11. (RESERVED)
10. (RESERVED)
9. PNP TRANSISTORS ARE 2N4037.
8. NPN TRANSISTORS ARE 2N4123.
7. CAPACITOR VALUES ARE IN MICROFARADS, 20%, 20V.
6. RESISTOR VALUES ARE IN OHMS, 5%, 1/4W.
(5) FOR SPARE LOGIC ELEMENTS, SEE TABLE V.
(4) FOR I.C. GENERIC TYPE NO. AND GROUND/VOLTAGE PIN NOS. SEE TABLE IV.
(3) (RESERVED)
(2) FOR VALUE, PART NUMBER AND USAGE OF COMPONENTS AFFECTED BY VERSION NUMBER, SEE TABLE II.
(1) FOR PART NUMBER OF COMPONENTS NOT AFFECTED BY VERSION NUMBER, SEE TABLE I.
NOTES: UNLESS OTHERWISE SPECIFIED

ASSEMBLY NUMBER 104811
SPECIFICATION NUMBER 104814
REFERENCE DRAWINGS

SIGNATURES	DATE
DR [illegible]	10-15-79
CHK [illegible]	[illegible]
ENG	
SUPR R.C. Ahlo	9-2-80
PROJ SUPR [illegible]	11-2-81

PERTEC
PERIPHERAL EQUIPMENT DIVISION

TITLE
SCHEMATIC, WRITE

104811 T1000	FINISH:	MATL:	SIZE J	DWG NO. 104810	REV J1
NEXT ASSY / APPLICATION			SCALE	DO NOT SCALE DWG	SHEET 1 OF 2

MA-5827

Figure 25 Schematic, Write (Sheet 2 of 4)

CIRCUIT	UA	UB	UC	UD	UE	TPA
100	U1	U2	U4	U3	U5	TP27
200	U1	U2	U4	U3	U5	TP28
300	U6	U7	U9	U8	U10	TP29
400	U6	U7	U9	U8	U10	TP30
500	U11	U12	U14	U13	U15	TP31
600	U11	U12	U14	U13	U15	TP32
700	U16	U17	U19	U18	U20	TP33
800	U16	U17	U19	U18	U20	TP34

Figure 25 Schematic, Write (Sheet 3 of 4)

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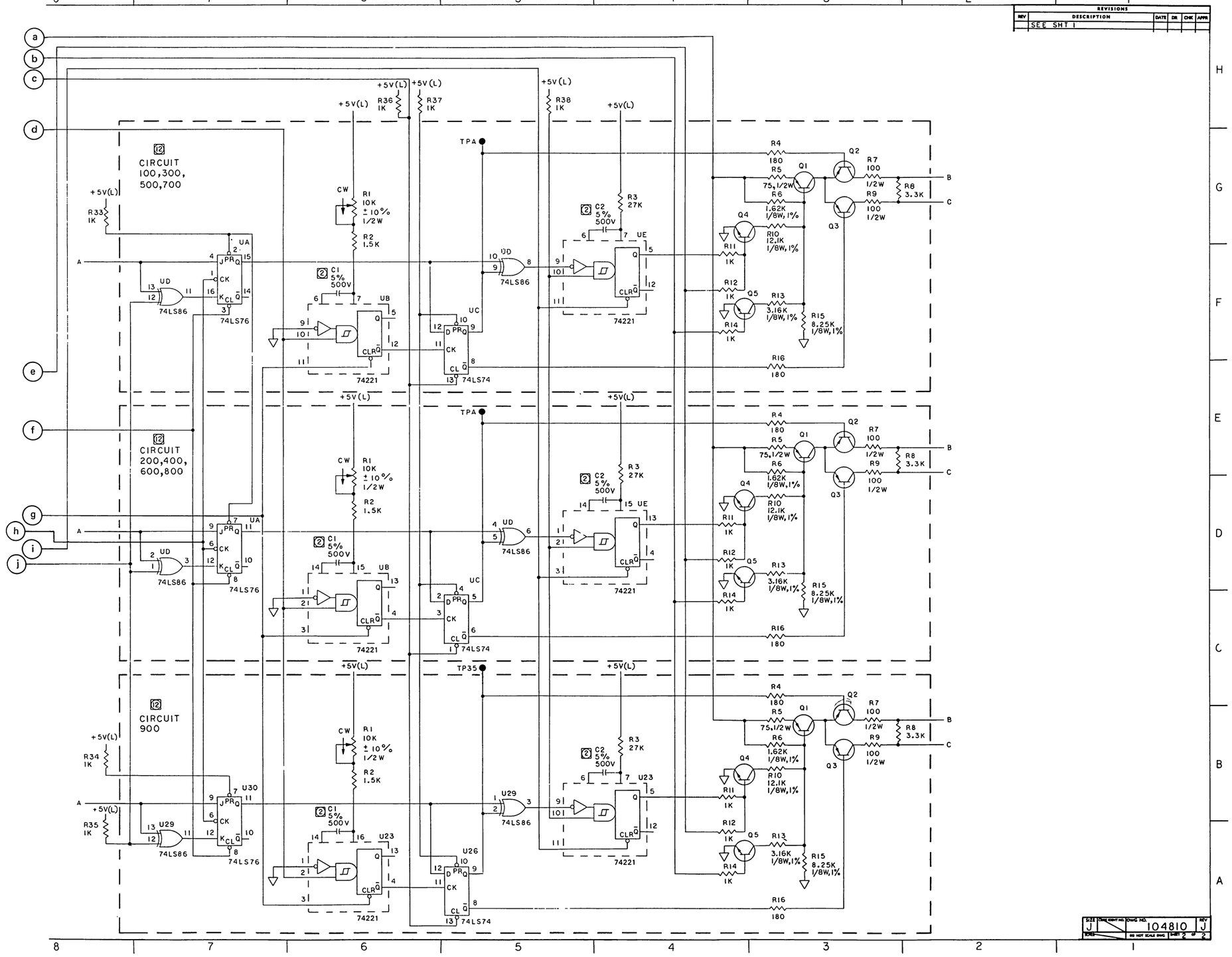
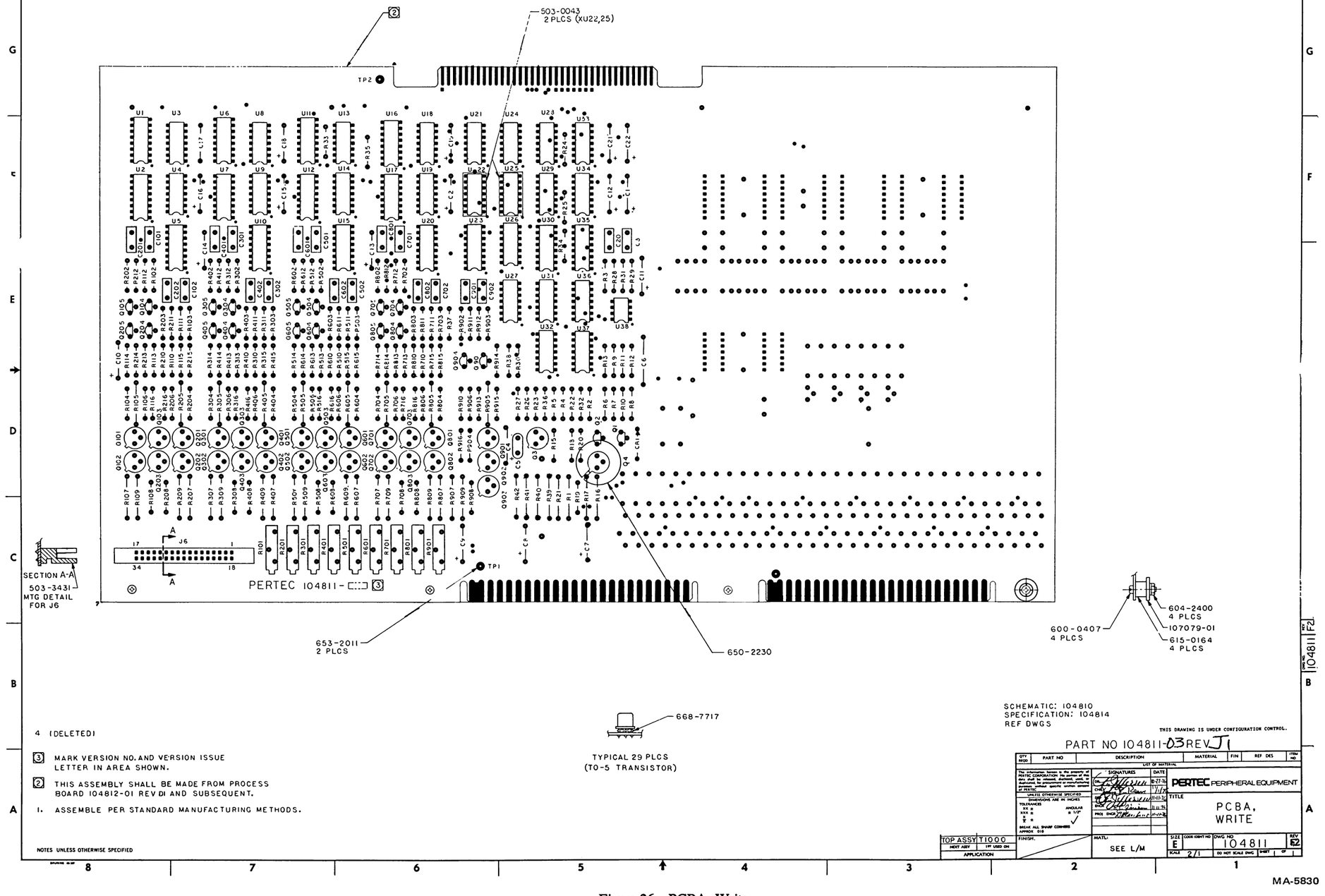


Figure 25 Schematic, Write (Sheet 4 of 4)

REVISIONS					
REV	DESCRIPTION	DATE	DR	CHK	APP
A	ERN8-YD PRE-PROD RELEASE	3-11-76			
A1	ECN 9731	11/17/76			
	ECN 9-III PROD. RELEASE	1/7/77			
B	ECN 11149	7/11/77			
C	ECN 10215	8/1/77			
D	ECN 10402	8/31/77			
E	ECN 10479	11/4/77			
F	ECN 10869	1/31/78			
F1	ECN 11471	5/8/78			
F2	ECN C12190	7/19/78			



4 (DELETED)

3 MARK VERSION NO. AND VERSION ISSUE LETTER IN AREA SHOWN.

2 THIS ASSEMBLY SHALL BE MADE FROM PROCESS BOARD 104812-01 REV D1 AND SUBSEQUENT.

1. ASSEMBLE PER STANDARD MANUFACTURING METHODS.

NOTES UNLESS OTHERWISE SPECIFIED

SCHEMATIC: 104810
SPECIFICATION: 104814
REF DWGS

THIS DRAWING IS UNDER CONFIGURATION CONTROL.

PART NO 104811-03 REV J1

LIST OF MATERIAL

QTY PER	PART NO	DESCRIPTION	MATERIAL	FIN	REF DES	ITEM NO

The information herein is the property of PERTEC CORPORATION. The duplication of this data shall be allowed, disclosed, used, or transferred, for procurement or manufacturing purposes, without specific written permission of PERTEC.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES
XX ± ANGULAR ± 1/2°
XXX ±
X ±
BREAK ALL SHARP CORNERS APPROX .010

SIGNATURES	DATE
DR	8-27-76
CHK	11/17/76
ENG APP	11-11-76
PROJ ENG APP	11-11-76

PERTEC PERIPHERAL EQUIPMENT

TITLE: PCBA, WRITE

TOP ASSY T1000
NEXT ASSY | 1ST USED ON
APPLICATION

FINISH:

MATL: SEE L/M

SIZE E | CODE IDENT NO | DWG NO 104811 | REV F2

SCALE 2/1 | DO NOT SCALE DWG | SHEET | OF

MA-5830

Figure 26 PCBA, Write

BLANK

13 12 11 10

H G F E D C B A

[1] TABLE I

PART NO.	REFERENCE DESIGNATION
100-1015	R126, 129, 226, 229, 306, 309, 406, 409, 506, 509, 606, R609, 706, 709, 806, 809, 906, 909
100-1025	R4, 13, 30 THRU 34, 47, 49, 53, 62, 72, 137, 237, 337, R437, 537, 637, 737, 837, 937, 73
100-1035	R1, 2, 15, 16, 36, 66
100-1055	R52, 58, 68, 104, 118 THRU 121, 254, 218 THRU 221, R354, 318 THRU 321, 454, 418 THRU 421, 554, R518 THRU 521, 654, 618 THRU 621, 754, R718 THRU 721, 854, 818 THRU 821, 954, R918 THRU 921
100-2205	R59, 54
100-2225	R35
100-2235	R3
100-4745	R74
100-3925	R55, 56, 57, 63, 67, 119 THRU 117, 219 THRU 217, R319 THRU 317, 419 THRU 417, 519 THRU 517, R619 THRU 617, 719 THRU 717, 819 THRU 813, R919 THRU 917
100-4715	R48, 51, 59, 69, 122, 123, 222, 223, 322, 323, 422, 423, R522, 523, 622, 623, 722, 723, 822, 823, 922, 923
100-4725	R14, 61
107-0100	R72
107-0196	R75
107-0348	R10, 28
107-0511	R9, 27
107-1002	R 19, 20, 22, 108, 208, 308, 408, 508, 608, 708, 808, R908, 17
107-1101	R7
107-1212	R103, 105, 203, 205, 303, 305, 403, 405, 503, 505, 603, R605, 703, 705, 803, 805, 903, 905
107-1330	R8, 26
107-1622	R38
107-2151	R64, 65
107-2371	R62
107-2870	R5
107-3830	R23
107-4641	R12
107-5111	R21
107-5110	R101, 102, 201, 202, 301, 302, 401, 402, 501, 502, 601, R602, 701, 702, 801, 802, 901, 902
107-3161	R18
107-8250	R6
120-0001	U12, 14
121-1010	R11, 29
121-1030	R37
130-1515	C64
130-2215	C65
130-4705	C63, 66, 67, 107 THRU 110, 207 THRU 210, C307 THRU 310, 407 THRU 410, 507 THRU 510, C607 THRU 610, 707 THRU 710, 807 THRU 810, C907 THRU 910
135-1031	C73
135-4742	C48 THRU 58, 68, C31 THRU 34, C69 THRU 72
139-4755	C59, 60, 61
139-2244	C1 THRU 30, 35 THRU 46, 101, 102, 201, C202, 301, 302, 401, 402, 501, 502, 601, 602, 701, 702, C801, 802, 901, 902

[1] TABLE I (CONT'D)

PART NO	REFERENCE DESIGNATION
200-4123	Q4 10 11
200-4125	Q1, 2, 3, 5, 6, 9
204-0074	Q101, 201, 301, 401, 501, 601, 701, 801, 901
300-4646	CR1, 2, 101 THRU 108, 201 THRU208, 301 THRU 308, CR401 THRU 408, 501 THRU 508, 601 THRU 608, CR701 THRU 708, 801 THRU 808, 901 THRU 908
400-0318	U101, 102, 201, 202, 301, 302, 401, 402, 501, 502, 601, U602, 701, 702, 801 802, 901, 902
400-0319	U41, 42, 103, 104, 203, 204, 303, 304, 403, 404, 503, U504, 603, 604, 703 704, 803, 804, 903, 904
400-2741	U38, 39, 40
515-1015	L1 THRU 6
700-5452	U7, 8, 9, 18 THRU 26
700-7416	U17, 34
710-4123	U105, 205, 305, 405, 505, 605, 705, 805, 905
710-7400	U29, 30
710-7404	U27, 28
719-7410	U33
710-7427	U1, 3, 6, 31
710-7430	U32
710-7438	U36, 37
710-7474	U10, 11, 13, 15, 16
710-7486	U2, 4, 5
104-1471	R76
107-1621	R25
104-2610	R71
107-9090	R24

[3] TABLE III

PART NO.	REFERENCE DESIGNATION
100-1035	R40, 44
100-2225	R39, 43
107-3162	R42
107-5112	R46
121-5030	R41, 45
200-4125	Q7, 8
710-7426	U35

MA-5831

Figure 27 Schematic, Data L (Sheet 1 of 4)

REVISIONS					
REV	DESCRIPTION	DATE	DR	CHK	APPR
A	ERN 3-7C PRE PROD RELEASE	9/16	EW	GA	GA
B	ECN 9653A	9/17	LD	DD	MA
	ERN 9-11T PROD. RELEASE	11/21	GA	AA	AA
C	ECN 10365	4/27	AA	AA	1
D	ECN 10455B	4/27	EB	AA	2
E	ECN 10866	1/28	EB	AA	AA
F	ECN 11127	2/28	LD	AA	AA
G	ECN 11331	5/28	E	AA	AA
H	ECN 11736	7/12-78	MM	AA	AA
J	ECN 11953	9/19/78	MM	AA	AA
L	ECN C13784				
M	ECN C13495A				

[2] TABLE II

ASSEMBLY 104806 VERSION NO.	VERSION CHARACTER-ISTIC	C62 .001 IS ± 10%, 100V 750 PF IS ± 5%, 500V		C103, 203, 303, 403, 503, 603, 703, 803, 903		C104, 204, 304, 404, 504, 604, 704, 804, 904		C105, 205, 305, 405, 505, 605, 705, 805, 905		C106, 206, 306, 406, 506, 606, 706, 806, 906		C111, 211, 311, 411, 511, 611, 711, 811, 911		C112, 212, 312, 412, 512, 612, 712, 812, 912		
		VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	VALUE	PART NO.	
-01	75 IPS	.001	131-1020	33 PF	130-3305	100 PF	130-1015	560 PF	130-5615	56 PF	130-5605	.0033	131 3320	.0022	131-2220	
-02	100 IPS	.001	131-1020	22 PF	130-2205	68 PF	130-6805	330 PF	130-3315	33 PF	130-3305	.0033	131-3320	.0022	131-2220	
-03	112.5/125 IPS	750 PF	130-7515	15 PF	130-1505	56 PF	130-5605	330 PF	130-3315	33 PF	130-3305	.0022	131-2220	.0015	131-1520	

[2] TABLE II (CONT'D)

ASSEMBLY 104806 VERSION NO.	VERSION CHARACTER-ISTIC	R124, 125, 224, 225, 324, 325, 424, 425, 524, 525, 624, 625, R724, 725, 824, 825, 924, 925			J1, 2	Q7, 8 R39, 40, 41, 42, 43, 44, 45, 46 U35	
		VALUE	PART NO.		191913-01	USAGE [3]	
-01	75 IPS	27K	100-2735		USE	OMIT	
-02	100 IPS	18K	100-1835		USE	OMIT	
-03	112.5/125 IPS	22K	100-2235		USE	OMIT	

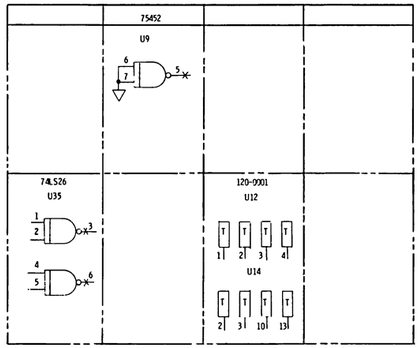
REFERENCE DESIGNATIONS

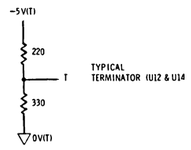
LAST USED		NOT USED		DELETED	
	[12]		[12]		[12]
C73	C12			C47	
CR2	CR8				
J5					
L6					
Q11	Q1				
R74	R25				
TP78	TP2	TP1 THRU 48		TP77	
U42	U5				

[4] TABLE IV

I. C. VOLTAGE AND GROUND PIN NO.'S								
I. C. TYPE	+15 V(F2)	+15 V(F1)	+5 V(L)	+5 V(T)	0 V(L)	0 V(T)	-15 V(F2)	-15 V(F1)
318		7						4
319		11			3,8			6
741	7						4	
7416			14		7			
75452			8		4			
74LS00			14		7			
74LS04			14		7			
74LS10			14		7			
74LS26			14		7			
74LS27			14		7			
74LS30			14		7			
74LS38			14		7			
74LS74			14		7			
74LS86			14		7			
74LS123			16		8			
120-0001				14		7		
U41, U42, 13191	11				3,8		6	

[5] TABLE V
[5] SPARE LOGIC ELEMENTS





TYPICAL
TERMINATOR (U12 & U14

[14] RESISTOR L NETWORK U12 & U14 ARE SPECIFIED AT TOP ASSY.

13 CAPACITORS LISTED AS PICOFARADS ARE 5%, 500 V.

[12] PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH CIRCUIT NUMBER. (R) IN CIRCUIT 270 IS R2701.

11. SIGNALS ARE CROSS-REF WITHIN SHT 2 BY NUMBERS APPEARING UNDER THE ASSOCIATED LOGIC TERM MNEMONIC. THE FIRST NO. IS THE SHEET NO. AND THE SECOND NO. IS THE ZONE NO.

10. DIODES ARE 1N4446.

9. PNP TRANSISTORS ARE 2N4125.

8. NPN TRANSISTORS ARE 2N4123.

7. CAPACITORS ARE IN MICROFARADS, 20%, 20V.

6. RESISTOR VALUES ARE IN OHMS, 5%, 1/4W. 1% ARE 1/8W.

[5] FOR SPARE LOGIC ELEMENTS, SEE TABLE V .

[4] FOR I. C. GENERIC TYPE NO. AND GROUND/VOLTAGE PIN NOS. SEE TABLE IV .

[3] FOR PART NUMBER, SEE TABLE III .

[2] FOR VALUE, PART NUMBER AND USAGE OF COMPONENTS AFFECTED BY VERSION NUMBER, SEE TABLE II .

[1] FOR PART NUMBER OF COMPONENTS NOT AFFECTED BY VERSION NUMBER, SEE TABLE I .

NOTES: UNLESS OTHERWISE SPECIFIED

ASSEMBLY DWG. NO. 104806

SPECIFICATION DWG. NO. 104809

REFERENCE DRAWINGS

SIGNATURES	DATE
DR. [illegible]	1/6/78
CHK. [illegible]	1/16/78
ENG. [illegible]	1/16/78
ENGR. [illegible]	1/16/78
PROJ. ENGR. [illegible]	1/16/78

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES
XX ± .01
XXX ± .005
ANGULAR ± 1/2°
BREAK ALL SHARP CORNERS APPROX .010

PERTEC
PERIPHERAL EQUIPMENT DIVISION

TITLE
SCHEMATIC
DATA L

104806	T1000
NEXT ASSY	1ST USED ON
APPLICATION	

FINISH

MATL

SIZE J | CODE IDENT NO | DWG NO 104805 | REV M

SCALE — | DO NOT SCALE DWG | SHEET | OF 2

MA-5832

Figure 27 Schematic, Data L (Sheet 2 of 4)

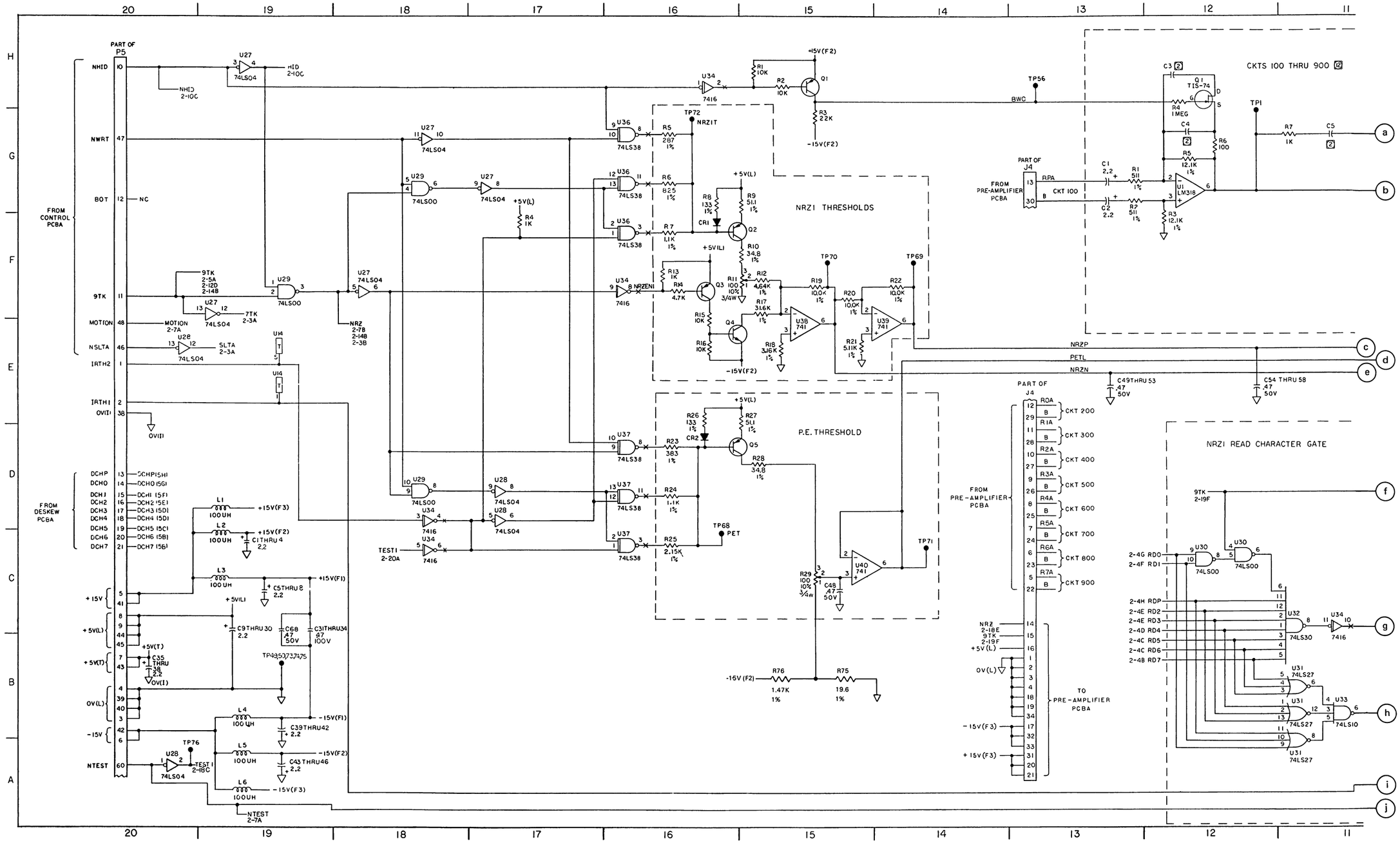


Figure 27 Schematic, Data L (Sheet 3 of 4)

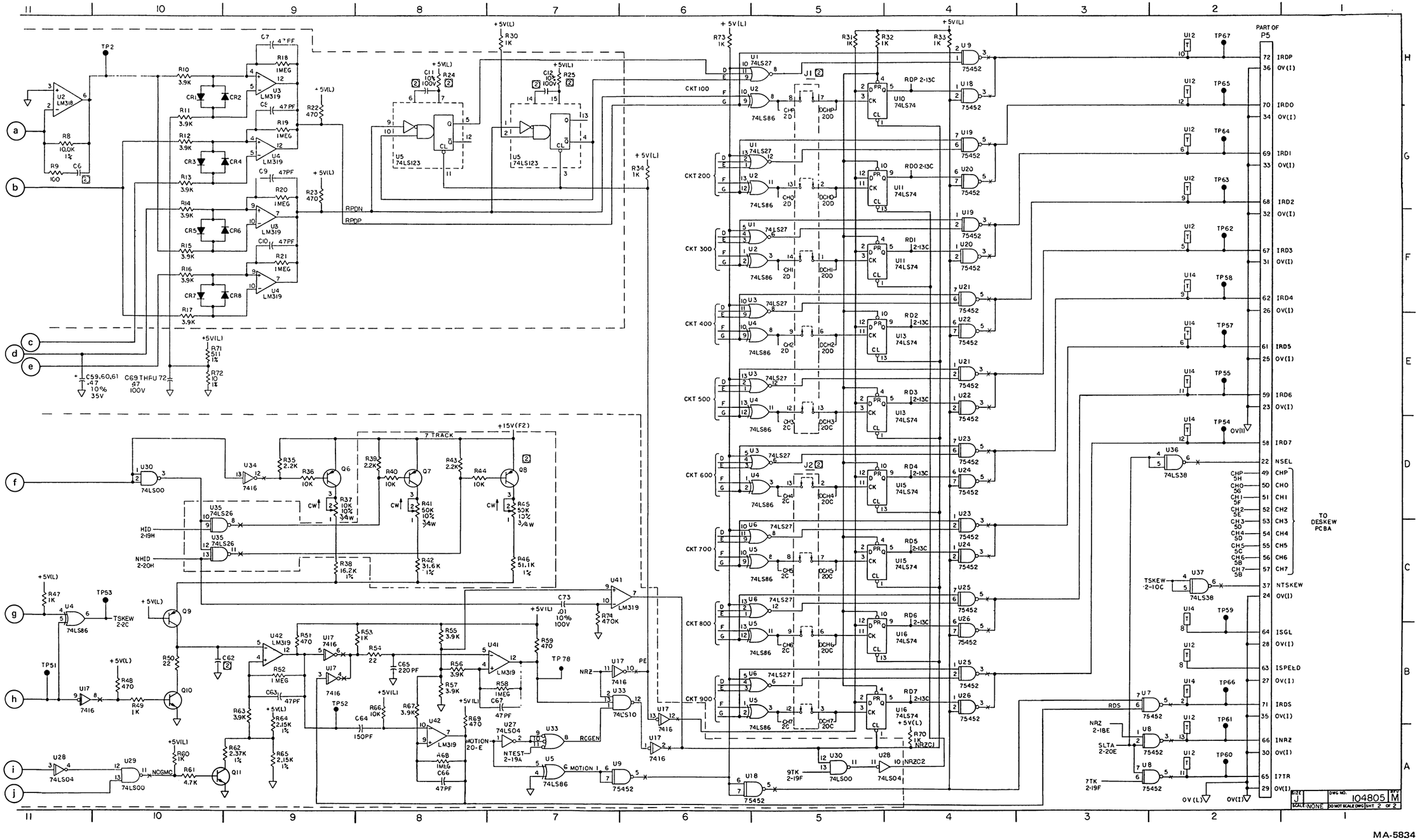


Figure 27 Schematic, Data L (Sheet 4 of 4)

REVISIONS					
REV	DESCRIPTION	DATE	DR	CHK	APPR
A	ERN 8-YC PRE PROD RELEASE	7/6/83	[illegible]	RRA
B	ECN 9655A	9/7/83	[illegible]	RRA
	ERN 9-AIT PROD RELEASE	9/26/83	[illegible]	[illegible]
C	ECN 10065	11-2-83	[illegible]	[illegible]
D	ECN 10965B	11-29-83	[illegible]	[illegible]
E	ECN 11127	2-24-84	[illegible]	[illegible]
F	ECN 11206	3/27/84	[illegible]	[illegible]
G	ECN 11736	7-27-84	[illegible]	[illegible]
H	ECN C12074	11/14	[illegible]	[illegible]
H1	ECN C12190	11/14	[illegible]	[illegible]

600-0007
4 PLACES

101913-01
2 PLCS
(J18 & J21

5030043
2 PLCS (XU12, 14)

J5

PERTEC DATA L 104806-

J4

107180-01

600-0407
615-0164
604-2400
8 PLCS

503-3431

SECTION A-A
MTG DETAIL FOR
J4

SPECIFICATION 104809
SCHEMATIC: 104805
REF DWGS:

3 MARK VERSION NO AND VERSION ISSUE LETTER IN AREA SHOWN.
2 THIS ASSEMBLY SHALL BE MADE FROM PROCESS BOARD 104807-01 REV E AND SUBSEQUENT.
1. ASSEMBLE PER STANDARD MANUFACTURING METHODS.

NOTES UNLESS OTHERWISE SPECIFIED

THIS DRAWING IS UNDER CONFIGURATION CONTROL.

PART NO. 104806-03 REV M

QTY PER	PART NO	DESCRIPTION	MATERIAL	FIN	REF DES	ITEM NO

LIST OF MATERIAL

The information herein is the property of PERTEC CORPORATION. No portion of this data shall be released, disclosed, used, or duplicated for manufacture or sale without written permission obtained in writing from an officer of PERTEC.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES
XX ± .03
XXX ± .010
X ± .1
ANGULAR ± 1/2°
BREAK ALL SHARP CORNERS APPROX .010

SIGNATURES	DATE
DR [illegible]	11/14/84
CHK [illegible]	11/14/84
DES [illegible]	11/14/84
ENGR [illegible]	11/14/84
PROJ ENGR [illegible]	11/14/84

PERTEC PERIPHERAL EQUIPMENT

TITLE
PCBA
DATA L

NEXT ASSY	T1000
APPLICATION	IF USED ON

FINISH

MATL: SEE L/M

SIZE	CODE IDENT NO	DWG NO	REV
E		104806	H1

SCALE 2/1 NOTED | DO NOT SCALE DWG | SHEET 1 OF 1

MA-5835

Figure 28 PCBA, Data L

BLANK

Figure 29 Schematic, 9 TK Preamp (Sheet 1 of 2)

[1] TABLE I

PART NO.	REFERENCE DESIGNATOR
100-1015	R111, 122, 133, 211, 222, 233, 311, 322, 333,
100-1025	R103, 110, 114, 121, 125, 132, 203, 210, 214, 221, 225, 232, R303, 310, 314, 321, 325, 332
100-3335	R104, 115, 126, 204, 215, 226, 304, 315, 326
100-4725	R101, 102, 108, 109, 112, 113, 119, 120, 123, 124, 130, 131, R201, 202, 208, 209, 212, 213, 219, 220, 223, 224, 230, 231, R301, 302, 308, 309, 312, 313, 319, 320, 323, 324, 330, 331,
103-1515	R1
109-2705	R2
123-1020	R106, 107, 117, 118, 128, 129, 206, 207, 217, 218, 228, 229, R306, 307, 317, 318, 328, 329
135-2862	C114, 116, 214, 216, 314, 316.
135-3352	C5
139-2244	C1, 2, 3, 4, 103, 107, 111, 113, 115, 203, 207, 213, 215, 303, 307, 311, 313, 315
139-4755	C101, 102, 105, 106, 109, 110, 201, 202, 205, 206, 209, 210, 301, 302, 305, 306, 309, 310
330-0685	VR1, 2
700-0115	U101, 103, 201, 203, 301, 303
710-7405	U102, 202, 302
710-7404	U1

[2] TABLE II

ASSEMBLY 104816 VERSION NO.	VERSION CHARACTER-ISTIC	C104, 108, 112, C204, 208, 212, C304, 308, 312		R105 116 127, 205 216, 227 R305 316 327	
	SPEED	VALUE	PART NO.	VALUE	PART NO.
-01	75 IPS	.0068	131-6820	220	100-2215
-02	100 IPS	.0047	131-4720	569	100-5615
-03	112.5/125 IPS	.0033	131-3320	560	100-5615

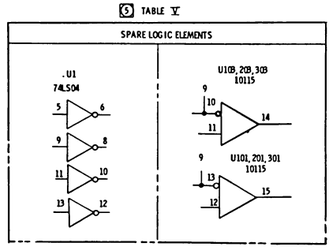
REFERENCE DESIGNATIONS			
LAST USED		DELETED	
	[12]		[12]
C5	C16		
E2	---		
J4	---		
P4	-----		
R2	R33		
TP5	TP3		
U1	U3		
VR2	---		
W1	---	W1	

[4] TABLE IV

GROUND AND VOLTAGE PIN NO.		
I.C. TYPE	+5V	GND
74LS05	14	7
74LS04	14	7

[5] TABLE V

SPARE LOGIC ELEMENTS



REVISIONS					
REV	DESCRIPTION	DATE	DR	CHK	APPR
A	ERN 8-YE PREPROD RELEASE	1/16/78	TDH	WB	RCA
B	ECN 9632	3/31/78	TDH	DP	RCA
B	ERN 9-NV PROD. RELEASE	5/22/78	TDH	DP	RCA
C	ECN 10178	9/29/78	GBL	DP	RCA
D	ECN 10307	11/17/78	DP	RWB	RCA
E	ECN 10936	4/18/79	BEB	DPC	DP
F	ECN 10990	5/24/79	J.S.	DP	DP
G	ECN 11209	10/19/79	T.H.	DPC	DP
G1	ECN C12190				
H	ECN C13113A				

[12] PARTIAL REFERENCE DESIGNATIONS ARE SHOWN. FOR COMPLETE DESIGNATION PREFIX WITH CIRCUIT NUMBER. (R1 IN CIRCUIT 200 IS R201).

11. (RESERVED)

10. DIODES ARE 1N4736.
9. (RESERVED)
8. (RESERVED)
7. CAPACITOR VALUES ARE IN MICROFARADS ± 20%, 20V.
6. RESISTOR VALUES ARE IN OHMS, 5%, 1/4W.

[5] FOR SPARE LOGIC ELEMENTS, SEE TABLE V.
[4] FOR I. C. GENERIC TYPE NO. AND GROUND/VOLTAGE PIN NOS. SEE TABLE IV.

3. POTENTIOMETERS ARE ± 10%, 1/2W.

[2] FOR VALUE, PART NUMBER AND USAGE OF COMPONENTS AFFECTED BY VERSION NUMBER, SEE TABLE II.
[1] FOR PART NUMBER OF COMPONENTS NOT AFFECTED BY VERSION NUMBER, SEE TABLE I.

NOTES: UNLESS OTHERWISE SPECIFIED
SPECIFICATION 104819
ASSEMBLY 104816
REFERENCE DRAWINGS:

SIGNATURES	DATE
ENG. T. HOSTICK	7/1/79
CHK'D. D. Pierce	7/1/79
DES. D. Pierce	7/1/79
DRAFT. R. Clarke	7/1/79
PROJ. ENGR. R. Clarke	7/1/79

PERTEC PERIPHERAL EQUIPMENT DIVISION

TITLE: SCHEMATIC 9TK PREAMP

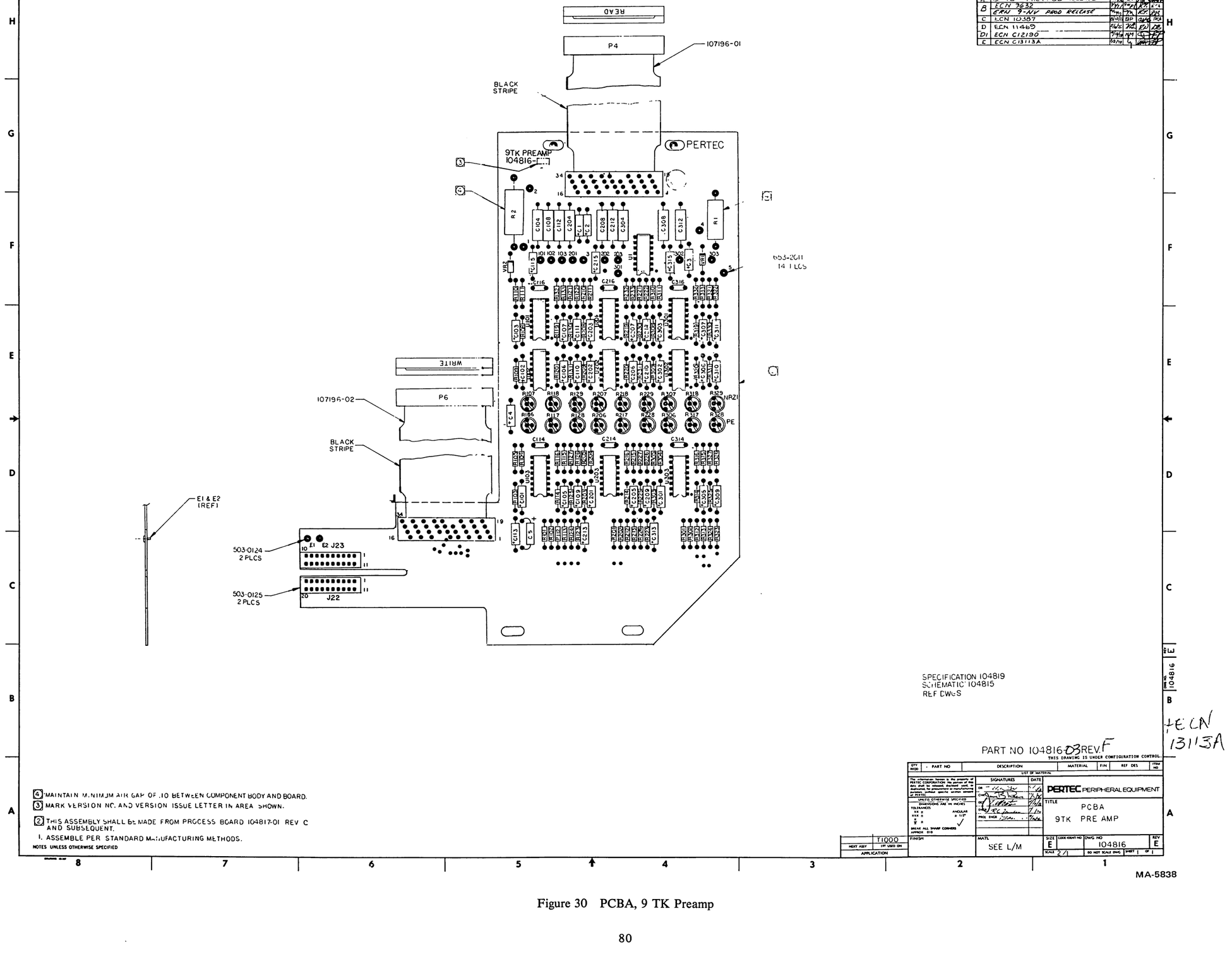
104816	T1000
NEXT ASSY	1ST USED ON
APPLICATION	

FINISH: — MATL: —

SIZE J — DRAWING NO. 104815 — REV H — SCALE — DO NOT SCALE DWG — SHEET 1 OF 1

MA-5837

Figure 29 Schematic, 9 TK Preamp (Sheet 2 of 2)



REVISIONS				
REV	DESCRIPTION	DATE	DR	CHK	APPR
A	D-XE PRE PROD RELEASE	7/11/74	JH	RWA
B	ECN 9832	7/11/74	MLK	RWA
C	ERN 9-NV PROD RELEASE	7/11/74	RK	RWA
C	ECN 10387	8/1/74	GEP	RWA
D	ECN 11469	10/2/74	RK	EDJ	DE
D1	ECN C12130	7/1/74	RK	EDJ	DE
E	ECN C13113A	8/2/74	RK	EDJ	DE

4. MAINTAIN MINIMUM AIR GAP OF .10 BETWEEN COMPONENT BODY AND BOARD.
3. MARK VERSION NO. AND VERSION ISSUE LETTER IN AREA SHOWN.
2. THIS ASSEMBLY SHALL BE MADE FROM PROCESS BOARD 104817-01 REV C AND SUBSEQUENT.
1. ASSEMBLE PER STANDARD MANUFACTURING METHODS.

NOTES UNLESS OTHERWISE SPECIFIED

ECN 13113A

Figure 30 PCBA, 9 TK Preamp